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Delphi.

FROM time to time during the past three years we have drawn attention to the progress of the French excavations at Delphi, but for any more systematic account it has been necessary to wait for two things—first, the issue of a plan of the excavations; and, second, the opportunity for visiting Delphi in person and studying on the spot the topography of the site, the ground-plans of temples, treasures, and votive offerings, and the sculptured and architectural monuments now stored in the local museum. It was our exceptional good fortune to visit Delphi in company with the Director of the French School, M. Homolle, and to hear from his lips his views as to the date and interpretation of the various buildings he has discovered. These views have been in the main laid before the public abroad in various conferences held at the French School at Athens and elsewhere, and are in part also published in recent numbers of the *Bulletin de Correspondance Hellénique*,* so we violate no confidence in placing them at some length before our readers. That the nation which discovers should be the first to publish is the most elementary rule of archæological etiquette; we are unable, therefore, at present to offer any reproduction of the as yet unpublished photographs of the sculptures discovered, but we are able to reproduce the plan of the excavations, hitherto accessible only in foreign journals.

To anyone who visits Delphi the first impression is of loss, the inevitable loss of the picturesque; old Kastri, the village that used to poise so beautifully in the steep slope, is gone for ever to make way for a Decauville railway, the bareness of freshly upturned earth, and a few dismal-looking ground plans. But let him once set his foot upon the Sacred Way, and regret is lost in a new and keener interest.

We must strictly limit our account by the plan before us (drawn up by the engineer, M. Couvert, on a scale of 1·500), and follow the Sacred Way just so far as it takes us—no further—*i.e.*, from the beginning where it enters the precinct at the right hand of the plan to the Treasury of the Athenians, the last building sketched in. The Temple of Apollo is not included; at the time we visited the excavations, though the ground plan was substantially complete, the whole site was not quite cleared, so it must wait a future occasion for discussion. Our method will be—Pausanias in hand—to follow just this small section of the Sacred Way, and see how far we can compare, how far supplement his account.

Pausanias (x., 9 ff.) approaches Delphi from Daulis, and therefore enters the precinct from the east. At the entrance (ἐσιὼν δὲ ἐς τὸ τέμενος) stood, he says, a brazen bull by Theopropos of Ægina the offering of the people of Corcyra. The bull, by his bellowing, had brought a herdsman down to the sea, and showed him a large shoal of tunny-fish. The pious bull wrought for his own destruction, for the fish could not be caught till he was sacrificed to Poseidon. From the proceeds of the catch the people of Corcyra dedicated his brazen effigy. The basis of this votive offering has been found out *in situ*, but about a hundred mètres higher up the Sacred Way, so that this gives us no topographical fixed point.

Any uncertainty, however, as to where Pausanias stands shortly and decisively disappears. Conspicuous in the plan N and S of the Sacred Way, close to the entrance, are two large semi-circular structures, marked respectively "Offering of the Argives, Kings of Argos" and "Offering of the Argives, the Epigoni." The southern of these two semi-circles was in part laid bare by M. Pomtow in May, 1887; the northern one was brought to light in May, 1894. Its substructure lies about a mètre above the pavement of the Sacred Way; a substantial wall of large blocks of stone closes it round to the north. At the foot of this enclosing wall is a low semi-circular step, bearing inscriptions. From right to left run the names of Kings of Argos —Ἄβας Ἀκρίσιος Λυγκεὺς Περσεὺς Ἡρακλῆς, and in the ordinary direction, left to right, the name of the artist, Antiphanes of Argos. The difference in direction is no doubt due to the desire to give to the names of these ancient kings a venerable air. This monument M. Homolle believes to have been that seen and described by Pausanias (x., 10, 5). It was dedicated by the Argives who helped Epaminondas and the Thebans in the foundation of Messene. "On it were represented statues of heroes, and the succession of kings that traced their descent to Herakles, or, even further back, to Perseus." It is this row of kings' names that have come to light.

Opposite these statues (καταντικρὺ) stood, according to Pausanias, another group—*i.e.*, the statues of the "Epigoni," also erected by the Argives—and these must certainly have occupied the southern semicircle discovered by M. Pomtow. The importance of this conjoint attribution cannot be overestimated. It gives an absolutely fixed topographical point, and enables us to place with almost equal certainty a whole series of other monuments on either side of the way. To get this fixed starting-point we have gone on a little in advance, and must retrace a few steps to the monument marked "Offering of the Lacedemonians." Here no inscription helps us, but the size of the monument, a chamber 25 mètres long (not fully drawn in on the plan), and the fact that its east end all but touches the precinct wall, points to two conclusions: the monument contained must have been of extensive size, and must have been seen by Pausanias immediately on entering the precinct. Only one monument fulfils these two conditions, *i.e.*, the pompous trophy of Lysander commemorating his victory over the Athenians at Aegispotamos. It consisted of no less than thirty-seven single statues by various sculptors, nine ranged in front, including Lysander himself crowned by Poseidon, behind them eleven statues of Spartans and their allies who fought at the battle, then another seven (ἐφεξῆς), and yet another ten close at hand (ἐχόμενοι αὐτῶν). The general disposition of the chamber corresponds to this account. It opens on to the Sacred Way, and contains a large raised basis which appears to have been divided into several steps.

Opposite this Lysander monument (again καταντικρὺ), Pausanias saw a monument of

* It may be well at this point to indicate the literature, already considerable, that has grown up round the Delphi excavations, and to which the writer of this article owes much. First in importance come the official reports issued by M. Homolle himself in the *Bulletin de Correspondance Hellénique*, the organ of the École Français at Athens. From the bulletin is taken the plan reproduced here. Two articles of a more popular character by M. Homolle have appeared in the *Gazette des Beaux Arts*, 1895, for February and March, and one somewhat more technical in the *Academie des Inscriptions et Belles Lettres Séance*, November 16, 1894. At a *conférence* at the French School on March 6, M. Homolle gave an address on the results of the excavations collectively, and, on March 20, he discussed the sculptures of the Siphnian Treasury. Of this last address a summary appeared in the *Berliner Philologische Wochenschrift*, April 27. In the same periodical Dr. Furtwängler, 1894, p. 1276, and Dr. Belger, 1894, p. 863, have given their personal impressions. Last, but not least, we owe much to Dr. Pomtow's discussion of the relation of the discoveries to the narrative of Pausanias, in a paper read before the Berlin *Archiologische Gesellschaft*, and reported in the *Anzeiger*, 1895, vol. x., Heft i., p. 2.

Arcadian kings and heroes offered by the people of Tegea from the spoils of the Lacedemonians (369 B.C.), this was again the conjoint work of several artists, among them the Argive Antiphanes. Of this monument the basis, with inscription, was found by M. Pomtow in 1887; it lay just inside the temenos entrance to the south side of the Sacred Way, and consists of a block of black calcareous stone, 1·30 mètres broad. There are three inscriptions on the stone, but two are later additions, the one in letters of the fourth century B.C., and consisting of five distychs, is the dedicatory inscription proper. It is fully discussed by its discoverer in the *Mittheilungen* (xiv., p. 15). It seems probable that, as in the case of the Argive kings, the names of the persons represented in the statues were inscribed, and that Pausanias took his account rather from these inscriptions than from the dedication on the basis, which is cut in very small characters. The Arcadian monument, as not found *in situ*, is, of course, not marked on the plan, but it may safely be placed on the south side of the Sacred Way, immediately opposite the Offering of the Lacedæmonians. Since this last, as mentioned above, all but touches on the precinct wall, all other monuments seen by Pausanias before he came to the Epigoni must stand on the south side. There are (1) the bull of Theopropos; (2) the "wooden horse" of the Argives; (3) the Marathon trophy; (4) the "Argive" trophy after the battle of Oinœ; (5) the chariot of Amphiaraos.

Here we may pause for a moment to make a reflection in honour of Pausanias. Frequent efforts have been made to disparage his authority as an eye-witness—to make of him a mere compiler, and, in the matter of Delphi, mainly depending on Polemon. Walking along the Sacred Way marking how his adverbs and prepositions fit in on the spot, it is impossible for any sane person to doubt that he actually saw what he describes. Dr. Pomtow, who has done so much for the topography of Delphi, is the first to own this. Another valuable result is that the precise meaning of particular expressions in frequent use by Pausanias comes out with more certainty here than in any other part of his perambulations. It is a relief to know once and for all that here, and consequently on the Acropolis at Athens, καταντικρύ means not merely opposite, but, when there is a road in question, *on the other side;* that ἐφεξῆς and παρὰ imply *immediate* consecution on the same side; and πλησίον and ἐγγύς somewhat less immediate neighbourhood, but still on the same side. When a new sentence is begun without indication of connexion, it frequently, as Dr. Pomtow observes, indicates transition to the opposite side.

After the statues of the Epigoni the southern side of the Sacred Way is completely destroyed—on the north side its course can be clearly made out by various chambers, fragmentary walls and niches, but these are all of uncertain attribution. About 20 mètres west of the Epigoni we come to a substantial fixed point, *i.e.* the *Treasury of Sikyonians.* Pausanias passes the building by, merely remarking that neither in this nor any of the Treasuries were there any 'χρήματα' to be seen in his days. The excavations tell us more. Somewhat below the level of the Sacred Way the foundations in tufa were discovered of a building with the form, the usual form for Treasuries of a *templum in antis.* The substructure of the building rests at a great depth on solid rock, and consist of fragments of some older building, pieces of the architrave, drums of Doric columns, and remains of some circular buildings; on these are certain stone-mason's marks similar to that found in the foundations of the Theban Treasury, to be noted later. As this building is the first that occurs of the shape fitting to a Treasury, and as the Treasury of the Sikyonians is the first named by Pausanias, there can be little, if any, doubt that the attribution is correct. In and about the foundations were found a number of metope sculptures in tufa, dating evidently about the sixth century B.C. The sculptures themselves are all painted mainly in red and black, the ground has at least preserved no trace of colour, the pose of the figures, the rigid gestures and stiff drapery all recall the manner of the black-figured vase-painters; so do the inscriptions that accompany the figures. M. Homolle states candidly that the inscriptions do not present the characteristic forms of the Sikyonian alphabet (*e.g.* Χ = Ε), nor are the myths represented in any way peculiar to or characteristic of Sikyon. Moreover the metopes are a little large and heavy for the proportions of the building, nevertheless, from the condition in which they were found it is impossible to entertain the supposition that they belonged to a previous building and were used up as old material. The subjects are as follow:—1. Idas and the Dioscuri bringing from Messenia the flock of captured oxen. The names are painted in black at the sides of the figures. Very curious, and decoratively very successful, is the pattern made of the manifold oxen legs. 2. A boar, probably part of a representation of the hunt of the Calydonian boar in which the Dioscuri took part. 3. Two horsemen seen *en face*, behind them a ship with warriors, of whom nothing remains but their bucklers, in the centre two figures playing on the lyre, near one of them the letters Φ Α Σ. The two horsemen are probably again the Dioscuri, and the scene may be taken from the voyage of the Argonauts. 4. A ram carrying a figure which must be Helle. 5. curious and very archaic representation of Europa on the bull; she has the oddly compressed waist that appears on early black-figured vases, and she bends forward in an exaggerated pose.

Pausanias mentions the Treasury of the Sikyonians immediately after, a votive offering of the Tarentines, consisting of a group of horses and captive Messapian women by the Argive sculptor Ageladas; the Sikyonian was near this (πλήσιον), so we must place the Tarentine group immediately west of the Treasury.

After the Treasury of the Sikyonians, and standing near to it (παρά) Pausanias mentions a group of statues dedicated by the Cnidians; they represented Triopas, the founder of Cnidos, standing near his horse, and Leto, with Apollo and Artemis shooting at Tityos, who is represented (as usually on vases) as wounded. These are the only monuments Pausanias mentions between the Treasury of the Sikyonians and that next in order, the Treasury of the Siphnians, so we must place them somewhere in the intervening space.

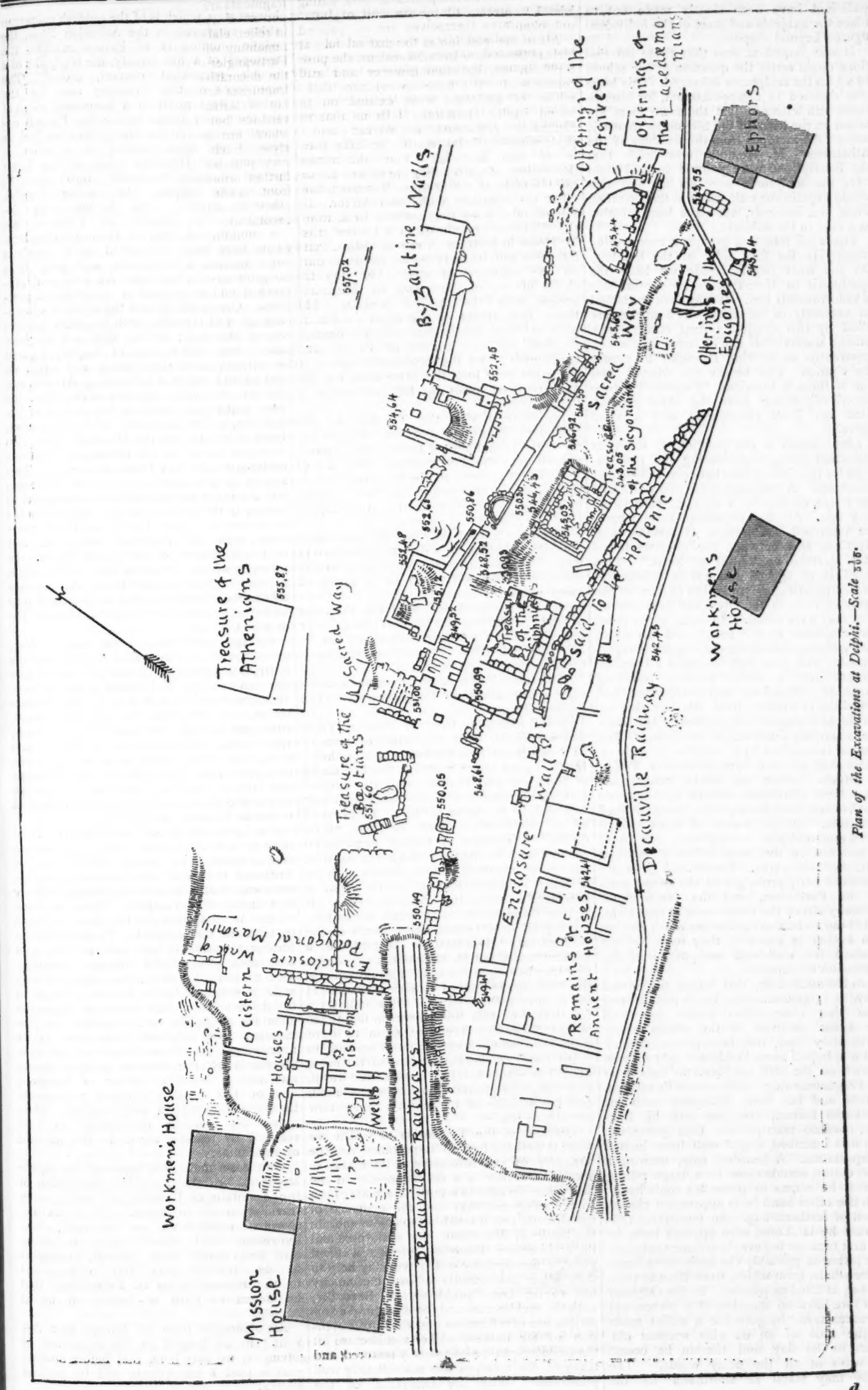
A few paces further to the west we reach the Treasury of the Siphnians. Herodotos tells us (iii., 57) that, about the time of the war against Polycrates, the affairs of the Siphnians were in a flourishing condition; "they were the richest of all the islanders, having in the island gold and silver mines, so that from the tenth of the money accruing from thence a Treasury was set up, equal to the richest." Pausanias, who saw the Treasury next after that of the Sikyonians, adds the further detail that the Treasury was built by order of the Delphic god, and that when in their greed the Siphnians neglected to send the annual tithe, the sea encroached and swept away their mines (P. x., 11, 2). The Siphnian Treasury stands impressively on a sort of rampart at the angle where the Sacred Way turns for the first time. It has the form of a temple with portico, and faces west, the only direction in which it is accessible. All round the Treasury were found not only the frieze and pediment sculptures to be noted shortly, but a number of architectural fragments amply sufficient to show that the decoration of the building was rich and delicate to no ordinary degree. The whole scheme can be reconstructed. The entire architrave was of Parian marble; above the sculptured frieze came a line of beading, massive and archaic in character; above this a Lesbian cyma, of which many fragments are preserved. The cornice is richly decorated with a band of palmetta and lotus in relief, elaborately coloured, the colour still remaining with extraordinary freshness. Dr. Furtwängler draws attention to the fact that the decorative forms of these architectural fragments find their closest analogy in vases, not of Attic, Rhodian, or Chalcidian provenance, but rather in the hydriæ of Cære, which are acknowledged to be Ionian in style. Such forms appear to have been very popular at Delphi. The cornice was further ornamented, though probably on the front façade only, with bossed phialai, the oldest examples of this popular form of decoration.

A building so elaborate and splendid would have been incomplete without sculptured adornment. Happily the frieze and the sculptures of one pediment have been found substantially complete; the sculptures of the west pediment are, however, entirely missing. They must have once existed, as the west is the principal façade and only entrance. By a most fortunate circumstance the sculptures of the frieze were found substantially where they originally fell, lying on all four sides of the temple, the corner slabs for the most part near the actual angles of the Treasury, so that the arrangement of the whole composition was a work of no very serious difficulty. The total length of the frieze was 28 mètres, of which 20 have been found.

To discuss the details of the Siphnian Treasury without illustrations would be an unprofitable task, but a few words on subject and style may be allowed. And first it is noticeable that the technique of the pediment sculptures is distinctly more archaic than that of the frieze. The scene represented is the "Theft of the Tripod." Athene stands in the centre, and—as on a Chalcidian vase with the same subject—holds apart the two combatants, Apollo and Herakles. Behind Apollo are two women figures, Leto and Artemis; behind Herakles also two figures and his chariot. The arrangement is instructive for the history of pediment composition. The figures stand—as Dr. Furtwängler has well remarked, ranged like "organ-pipes," shortening towards either end; the actual angles were more than the artist could cope with, he leaves them unfilled—in fact, the composition is nothing but a bit of frieze cramped into a pediment. The central figures present a curious peculiarity of technique; the upper parts are worked fully in the round, the lower simply treated as relief. M. Homolle explains this as intended to throw the upper parts into prominence, in order to counterbalance the shadow cast by the tympanum.

When the pediment sculptures are examined side by side with those of the frieze, as they stand in the museum at Delphi, the greater freedom and livelier motion of the frieze sculptures is at once evident. M. Homolle goes further. He sees in the frieze itself the work of two different artists—the slabs of the south and west sides from the older, those of the north and east to the younger hand. It is certainly noticeable that on the south and west slabs the relief shows but little modelling; like those of the pediment, the edges are cut square as in the well-known Sparta grave reliefs; on the north and east slabs they are more rounded. The composition, too, of these presumably later slabs is more complex.

From the point of view of subject, the whole frieze is a mine of mythological interest, and its value is the greater from the fact that nearly all the figures bear legible inscriptions—legible, *i.e.*, when they were first excavated, with letters painted red, some of which were written on the ground of the relief close to the figures, others on the band below the composition, as in the Pergamene altar. Originally, in all probability, every figure, and even the horses and some inanimate objects, had their names inscribed. Many of the inscriptions have disappeared altogether, some are now illegible, but



Plan of the Excavations at Delphi.—Scale 160.

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sufficient have been clearly made out to place the subjects and most of the individual figures beyond dispute.

It was hoped at first that these inscriptions might settle the question of the school to which the sculptures belonged. This hope was doomed to disappointment, for inscriptions with letters of just the same form are found on the frieze of the Sikyonian treasury, and on the metopes from the treasury of the Athenians. M. Homolle now holds that the inscriptions were painted in at Delphi after the sculptures were set up, and this would explain the uniformity in the alphabet. They are, however, none the less valuable as a clue to the subjects.

These fall into four groups, corresponding roughly to the four sides of the building. On the front (west) façade we have the apotheosis of Herakles. The central slab is unfortunately lost. It may have contained an assembly of the gods. The angles are filled by two chariots turned cornerwards. Athene stands near one of these in the act, apparently, of inviting Herakles to mount the chariot. The horses are winged, and one of them is inscribed "Pegasos." Hebe (inscribed) stands near the other chariot. Near her Niké (inscribed), and a third figure.

Less certain is the position of the next important group, representing the preparations for the chariot race between Pelops and Oinomaos. A fragment from this portion of the frieze, containing a chariot, were found long ago. All the important male figures are inscribed, *i.e.* Pelops, Oinomaos, and Myrtilus, and between the chariots is an altar incribed as "Altar of Zeus." This detail is of special interest in relation to Dr. Dörpfeld's conjecture that in front of the figure of Zeus in the Olympian pediment an altar may have stood. An altar gives point and emphasis to the scene, and occurs in vase-paintings wherever the contest is represented. The east side contains a Homeric context over a fallen warrior, inscribed Sarpedon. Menelaos also is inscribed, and Patroklos is evident from the fact that on his shield is written "of Achilles" (Ἀχιλλέως). He is carrying the arms of his friend. The combat is watched by a number of gods on either side, as their sympathies are Trojan or Greek. Some are easily recognisable from their attributes—others, *e.g.* Nemesis must, but for these inscriptions, have remained uncertain. On the bosom of Zeus a hand rests, apparently of a suppliant; the figure is lost, but on the band below is inscribed Θέτις Αχιλλέως μήτηρ. The seated gods are like some early prototype of the seated gods of the Parthenon, and the resemblance naturally struck the discoverers at first sight, but these archaic divinities are much livelier and keener in gesture; they have not yet attained the well-bred composure of the Parthenon Olympians.

On the north side, that facing the Sacred Way, a gigantomachia is depicted, and from this composition come some of the finest motives in the whole frieze. Fortunately here, too, inscriptions abound, and it is hoped some incidental light may be thrown on the still problematic figures of the Pergamene altar. Athene and Enkelados, Cybele and her lions, Dionysos with his kantharos helmet, Heracles with his lion-skin, need no inscriptions. One group, but that it is inscribed, might well have baffled interpretation. A bearded man, wearing a short chiton, stands close to a large pithos, over it he seems to place his open hand; with the other hand he is apparently closing a sort of leathern bag. An inscription tells us that he is Æolus, who appears here, for the first time we believe, in archaic sculpture. The pithos is probably the main store-house of the winds, from which, from time to time, the bag is filled as wanted. In the Odyssey (x., i.) we have no mention of a pithos, but Odysseus says "he gave me a wallet made of the hide of an ox nine seasons old, which he let flay, and therein he bound the ways of all the noisy winds." The pithos may stand as shorthand for the island "surrounded by the wall of bronze unbroken."

About the question as to what school gave birth to these curious and sometimes beautiful Siphnian sculptures controversy has already commenced. We have no evidence that a school of sculpture ever existed on the island itself. Herodotus tells us that the Siphnians possessed a market and a prytaneion of Parian marble, and the frieze is of that material. The architectural decorations of the building are archaic Ionian, but the style of the sculptures is not wholly what we associate with Asia Minor. Dr. Furtwängler does not hesitate to attribute the Siphnian sculptures to a Parian artist. M. Homolle inclines to see in them Argive influence, and he rests his argument, in part, on the evidence of epigraphy. On the shield of one of the giants an inscription occurs with the Argive lambda. The heavy proportions of the figures seem to point to Peloponnesian tradition, the choice of subjects, *e.g.*, the contest of Pelops and Onidomaos; and the prominence given to Menelaos may look the same way, but the question must await the full publication of the sculptures.

Immediately after the Treasury of the Siphnians Pausanius mentions statues set up by the inhabitants of Lipara after a naval victory over the Tyrrhenians. The site of these is not marked on the plan, but just at this spot an inscription has been found belonging to a votive offering from Lipara (*Bull. de Cor.*, c. xvii., p. 614).

So far the Sacred Way has run steadily at a moderate incline in a direction almost due west. It now turns at right-angles to the north, and climbs upward by a series of steep steps for about 13 mètres, and there meets the elevated terrace of the Treasury of the Athenians, our present goal. Just opposite where the road turns, and on its left side, we come to another building—the Treasury of the Bœotians.

At this point Pausanias becomes topographically somewhat vague. Immediately after the Lipara monument he says, but with no topographical indication, that "the Theban Treasuries resulted from the victory of Leuctra as the Athenian from the battle of Marathon." He then goes on to mention the Treasuries of Syracuse and Potidaia, and the circumstances of their founding; these two last have not, so far, come to light. Fortunately as to the Bœotian Treasury there is no doubt. A number of blocks were found covered with inscriptions, some dealing with the whole people of Bœotia, others with individual Thebans, also a decree about a boundary between two Bœotian towns. It is true these blocks were found not *in situ*, but a good deal further down, south of the wall marked "Helleniko" in the garden of a modern house, but M. Homolle has no doubt that they belong to this spot. The Treasury of the Bœotians is built of blueish limestone in the form of a Doric temple. It stands on a foundation of tufa blocks, which, like those of the Sikyonian Treasury, seem to have come from another earlier building, and, to judge from the mason's marks, of the same date. The whole building has suffered much, and though its ground plan can be made out, only the remains of the south side are now actually *in situ*.

The last of the Treasuries to which we came is perhaps first in importance, *i.e.*, the Treasury of the Athenians. Its claim to special attention is a double one. In the first place, its date is secure; we know, both from literary tradition and the evidence of inscriptions, that it was built to commemorate the battle of Marathon. Its sculptures and its architecture, therefore, furnish a fixed point, a standard by which we may help to date other monuments whose chronology has so far been problematic. Secondly, both the architecture and the sculptural decorations are of a fineness and finish of execution so far unique. The architecture of the building can be completely restored, and many of the metopes are marvellously well preserved. With the exception of the lowest step, which is of the reddish calcarean stone employed in the Athenian Stoa, the whole building is of Parian marble, the metopes of a fine quality, the triglyphs of a bluish, somewhat coarser, stone. The sculptures of this Treasury are, for the present, kept apart in a basement room of the temporary house where the French excavators live. At the first glance we feel as though we were looking at a series of Theseus and Herakles vases of the finest period directly rendered into marble; the same types, the same careful, delicate detail. One façade was devoted to the labours of Theseus, six in number, the other to those of Herakles. The sides were decorated with combats of Amazons, a Geryoneia, and possibly a Gigantomachia, but these are less well preserved and at present of uncertain disposition. One of the best of the series is a bending figure of Herakles with lion skin knotted about his neck; in the field are his bow and arrows with a piece of drapery, figured exactly as these recur again and again on red-figured vases, a bull and an Athene and Theseus standing opposite each other, the hero apparently awaiting the orders of the goddess. The contests with Periphetes, Sinis, Kerkyon, and the Minotaur have also been made out. Of the pediment sculptures nothing so far has been discovered. Two figures in the round of mounted horsemen and Amazons which at first were believed to belong to the pediments are now attributed to akroteria. Some twenty or thirty years later than the Siphnian sculpture, and of much greater delicacy and finish, the metopes of the Treasury have still a slight savour of archaism about them. As to closer relations with other known sculptures it may be better to await the full publication of the metopes.

On the north side of the Sacred Way, exactly at the corner where it turns sharply north, a quadrangular building is marked on the plan to which M. Homolle gives no name. He conjectures that it may be the Bouleuterion. M. Pomtow, on the other hand, would see in it the Treasury of the Cnidians, which Pausanias mentions in one breath with, and must have seen at the same moment as, the Treasuries of the Bœotians and the Athenians. Further excavations may settle this question, and may also yield to us the Treasury of Potidaia.

We have reached our goal with the Treasury of the Athenians; the plan for the present extends no further. After this last Treasury the road branches out into side ways east and west, and topography is likely to become more complex. With the issue of the next section of the plan we hope to continue our account. To describe the further monuments we saw on the spot without a plan would only be confusing. The great centre of interest—and, we may add, of disappointment, for not a fragment of its sculptures has come to light—the Temple of Apollo, still remains for discussion. We only add that close to its foundations have been found not only new fragments of the famous musical hymn, but also a beautiful statue of Antinous, one of the finest sculptured monuments that the excavations have yielded. How much yet remains unexplored is best realised by reading ahead in the account of Pausanias.

One lesser matter we hope will not escape attention, *i.e.*, the complete exploration of the Fountain of Castalia, at which every traveller stops to drink. There, as Dr. Dörpfeld pointed out on the spot, clear indications still remain that an extensive well-house once existed, analogous in its general plan and arrangement to the Enneakronnos of Peisistratos that he claims to have re-found for us at Athens.

Archæologists from all Europe met this spring to do honour to the excavators of Olympia; we may hope that before another year is past a like tribute will be paid at Delphi.

NOTES.

IT appears that the Government have now at last resolved to keep the treatment of Parliament-street and Great George-street in their own hands; that is to say, the present Government has manifested an inclination to do something with these important sites, and some indication that they are disposed to take the Parliament-street improvement in hand before very long. But whether the successors to a Government which will probably not be very long in power will take the same view is still a thing to be questioned. The widening of Parliament-street at all events ought to be done at once; the continued postponement of an improvement the necessity of which has been obvious for a quarter of a century is a disgrace to London. As for the Great George-street site, the opportunity for making the most of it and utilising it as part of the site for a great group of Government offices worthy of the nation was lost many years ago, through procrastination and false economy. It is not very easy to see what is the best use to be made of it now for Government purposes, but no doubt on architectural grounds the rebuilding of the street, considering its position, is strongly called for, and must be carried out sooner or later. But any difficulties in regard to it need not delay the widening of Parliament-street, which ought not to wait for anything.

MR. HOLMAN HUNT'S "Romanes lecture" at Oxford is as the voice of one crying in the wilderness. It is nearly all true, but the truths, we fear, are uttered to deaf ears. Mr. Hunt says that what had been the great misfortune throughout his term of observation had been the want of due cultivation of a knowledge of art by the rulers of the land and those who directed public opinion, and the system of appointing on committees of public taste gentlemen who had gone through no system of education such as would enable them to form right conclusions on the carrying out of public works and the selection of artists. In regard to the system of selecting artists by public competition, as in the Italian Renaissance, Mr. Hunt urges that in those days meretricious art had not been invented, and the umpire had only to judge between one class of honest workmanship and another. We doubt whether some of the greater artists of the Renaissance would quite have agreed to that; but in any case there is still the difficulty that the committees who would make the selection would, as usual in England, be persons with little or no knowledge of art, and who would be as likely to choose the poorest design as the best. General cultivation in art, as a part of general education, is the great thing wanted in this country, and it is to be hoped that Mr. Hunt's strong words may not be entirely forgotten. As reported in the *Times*, Mr. Hunt's recommendations for attaining this end are as follows:—

"The first step should be to supply graduates of the Universities with a radical knowledge of the sciences employed in art, to qualify them for the development of a good judgment. All barely theoretical teaching was apt to mislead the amateur and puff him up with conceit. His study should be practical, and of matters that were sure. It might be a question how far such training should extend, but it might be at once laid down that a full acquaintance with the proportions of the human figure was required, with the laws of balance and equipoise which controlled movements and the carrying of weights. Beyond such acquirements, a knowledge of the laws of perspective should be attained, and, as the due corollary, the simple laws of light and shade might be mastered. These and some understanding of the varieties of each people's decorative design, if well established in the amateur mind, might entitle a young man to a degree which should qualify him for any post of responsibility in the control of national works or in publishing opinions on matters of art. He would only add his assurance that such a simple provision by the Universities as that indicated would impart great vitality to the whole range of English art design."

For Mr. Hunt's attack on French art, as an art "emanating, not from love, but from hate," there is unhappily, at the present moment, too much excuse, but he goes too far in saying that French art has done great harm to the world. The good it has given us has far outweighed the evil. Mr. Hunt seems here to be too much confounding morals with art.

THE account given in the *Times* of the work and position of the Hon. R. Balliol Brett, who has just been appointed Secretary of the Office of Works in succession to Mr. Henry Primrose, is characteristic of the way in which such appointments are regarded in this country. We have a list of the official situations Mr. Brett has held under various political leaders, of his membership of the House of Commons, and that he is the author of a book entitled "Footprints of Statesmen." But there is not a word of indication of any studies which might be supposed to have fitted him specially for such a position as that of Secretary of the Office of Works, which practically means having a great deal of influence in the control of large public improvements; not a word as to any special knowledge of architecture or building or the laying out of cities. In England such special acquirements are considered of no consequence either in a First Commissioner of Works or in the Permanent Secretary. The appointment is simply political. Mr. Brett may have all the accomplishments necessary for the post; we do not know that he has not; but it is obvious that no one cares whether he has or not.

THE protest entered by Mr. William Morris against a rumoured proposal to "restore" the Royal tombs in Westminster Abbey has our entire sympathy. Everything should be done, and we believe is being done, to preserve them from further decay; but, as Mr. Morris suggests, any attempt at restoration in the sense in which the word is generally used—inserting new Purbeck marble in place of old, and "polishing it up till it shines like glass;" restoring details of canopies and figures in imitation or guess work from what remains—should be kept for some "Old Westminster" model, whenever such a thing may be done. It should not be tried on the originals, thereby robbing them of all their reality.

WE have often complained of the poor design of the ceremonial keys which are prepared for the official opening of public buildings by eminent persons. Photographs of them are frequently sent to us for illustration, but it is very rarely that we find a design which, on its artistic merits (the only point we can consider here), is worth illustration. Some correspondence we have recently had in regard to one such key suggests one cause for such failures. It is said that ceremonial keys are never thought of till the last moment, and are then ordered in a hurry, leaving no time to procure a design from a competent artist; the only course being to put it into the hands of the best workman in the employ of the firm commissioned, and get him to make the best thing he can in a hurry. Of course, nothing very good is likely to be done in that way. Those who care about having an artistic key, or trowel, or whatever it may be, for a ceremonial occasion, should go to an artist to make them a design in the first place, before it is too late, and then commission a manufacturer to carry it out. It would be more fair to the manufacturer, who would probably much prefer that arrangement, and there would be a chance of some artistic thought and originality being put into the design.

THE Sanitary Exhibition at Paris is to be formally opened by the President on the 18th of this month, but it is not likely that it will be complete by that time, and, in fact, we have been asked to make it known to our readers that exhibits will be received up to the end of the present month, provided that the application for space is made at once. The managers of the Exhibition, we understand, are rather disappointed that there is not more promise of exhibits from English firms, as a great deal of importance is attached to English sanitary work, and it was expected that there would be a large display of it. We may mention that the Managing Committee includes some of the best French engineers and architects of the day, and the Exhibition is likely to be an important one. There will be a Sanitary Congress held in connexion with the Exhibition.

THE twenty-seventh annual report of the Surveyors' Institution states that there has been a total increase of fifty-eight in the number of members during the past year, as against an increase of forty during the preceding year. The number of members of all classes — Honorary Members, Fellows, Professional Associates, Associates, Students, and Colonial Fellows—now on the books of the Institution is 2,367. The Institution commenced in 1869 with 202 members. In 1885 it numbered 1,192, so that it has nearly doubled its numbers during the last ten years. The report gives particulars as to the state of the funds of the Institution, the competition for its prizes, &c., and refers with satisfaction to the official standing given to the Surveyors' Institution in the Tribunal of Appeal established under the London Building Act. It is remarked that not only is the Institution entitled to be represented by one member to that tribunal, but that as a matter of fact all the three members at present constituting it are Fellows of the Surveyors' Institution. The Council are taking steps, it appears from the concluding paragraph of the Report, to increase the membership of the Institution in parts of the United Kingdom where at present it is insufficiently represented. Altogether, the Report ought to be a very satisfactory one to the members of the Surveyors' Institution, being both a record of past success and a promise of continued energy in the future.

THE underground Electric Railway, which is being constructed at Budapest, is not of any special structural interest to architects, but the business-like way in which its construction was decided on calls for some comment. Ordinary tramways, and afterwards electric tramways, had been proposed for the route, but the authorities very rightly refused to allow any disfigurement of the splendid Andrassy-avenue, under which the new railway now passes, or any inconvenience to the foot passengers of this favourite promenade. The plans of the Underground Railway were then submitted, on January 22 last year. According to a foreign contemporary, they passed the Common Council, a special Finance Committee, and a special Railways Commission by the end of April; and various Government officials, and the necessary Royal Commission, by the middle of August, after which the work could be commenced at once. This is a striking contrast to the procedure in Paris, where they have been debating and dallying about an underground railway scheme for several years, and is a wholesome example for London in regard to many public improvements which are promised, and delayed from year to year. The rapid improvement of Budapest is mainly due to this business-like energy with which work is pushed on, and older city communities may well take a lesson from it.

THE Bonshaw Estate, Dumfriesshire, which has lately been placed in the market, contains an ancient Border Tower, in a fair state of preservation. Within one mile are the ruined towers of Robgill and Wardhouse; the three being situated in the beautiful valley of the Kirtle, and in Annan parish; it is believed that they were erected at the same time in the earlier half of the sixteenth

century; not far distant is Kirkconnel. Bonshaw tower, the mansion-house adjoining it, stands about 90 ft. from the edge of a lofty cliff on the river's right bank. According to the description, with views and plans, given by Messrs. Macgibbon & Ross, in vol. iii. (1889), of their "Castellated and Domestic Architecture of Scotland," it consists of three upper floors containing one room a-piece, gained by a wheel-stair leading from the ground-floor, wherein are a vaulted cellar, lighted by four finely splayed shot-holes, and a small dungeon. On the first-floor is a hall, measuring 27 ft. by 17 ft. 8 in., and 10 ft. high, and having four windows and a handsome fire-place which projects 2 ft. from the wall, and rises 7 ft. to top of its moulded cornice. An aumbry in the south wall has an old Gothic-shaped lintel. On the second floor are a garderobe and a wall-press. Some sixty years ago ordinary slates were substituted for the large stone flags of the original roof; cannon-shaped gargoyles carry rain-water off the roof and battlements. Above the entrance doorway, facing southwards, is the sacred monogram and a motto: "Soli Deo honor et gloria." Wardhouse is reputedly the first house in Scotland entered by Bruce when fleeing from Edward I. The Kirtle flows by Kirkpatrick Fleming, Annan, and Gretna, into Solway Frith; in the first-named parish is Kirkconnel. A heap of stones was raised over the spot, on the bank of Kirtle Water, of the death, three hundred and fifty years since, of Fair Helen of Kirkconnel, at the hand of Bell, of Blacket House. She was, we believe, an Irving, and the Irvings built Bonshaw. Her grave is in Kirkconnel churchyard, where, also, was buried her lover, Adam Fleming, of Redhall, who took terrible revenge for the murder of his betrothed.

SOME noteworthy landmarks have lately been removed from the district between Fetter- and Shoe-lanes, and north of Gough-square. Goldsmiths'-row, on the south side of East Harding-street, is now incorporated with that thoroughfare; on the front of the "George" public-house (rebuilt after the designs of Mr. H. I. Newton) was a stone tablet inscribed "Goldsmith's Row," the arms, in relief, of the Goldsmiths' Company are affixed to most of the houses in Great New-street, Red Lion-passage, East Harding-street, and to Messrs. Eyre & Spottiswoode's premises. That Company are, we believe, still ground-landlords of the property round about. Pemberton-row commemorates a bequest of Sir James Pemberton to the Company in 1613. In 1513 Agas Harding devised to them all her real property in the city and suburbs, now represented by McLean's buildings, in the area of New Street-square; Francis Ashe gave them six houses in Little New-street (1652); and in 1824 Thomas Harding bequeathed them about 5,000*l.* in consols and reduced annuities, in trust, for pensioners in the almshouses at Acton. On the wall, to the right hand of one descending the steps out of Great New-street into Robin Hood-court, is the Company's coat-of-arms; the two carved stones bearing their arms—the larger and older stone with date "1670"—have recently disappeared.

THE proposed competition for a new school for the Melbourne (Derbyshire) School Board seems to open brilliant prospects for architects. According to a report in the *Derby Mercury* of May 29th, it appears that the Board desire to have plans for the erection of a mixed school for 500 children, with central-hall and five class-rooms, and the usual adjuncts. For this they have decided to invite five architects to compete, to employ one of them (though we do not observe that they bind themselves to do that), "and to award £3 to the architects whose plans are rejected." Does this mean £3 among them—15s. each—or £3 to each? Either way, it is a remarkable offer, and ought to excite the best energies of the fortunate architects invited.

IRONWORK—THE GRAND PERIOD.*

BY MR. J. STARKIE GARDNER.

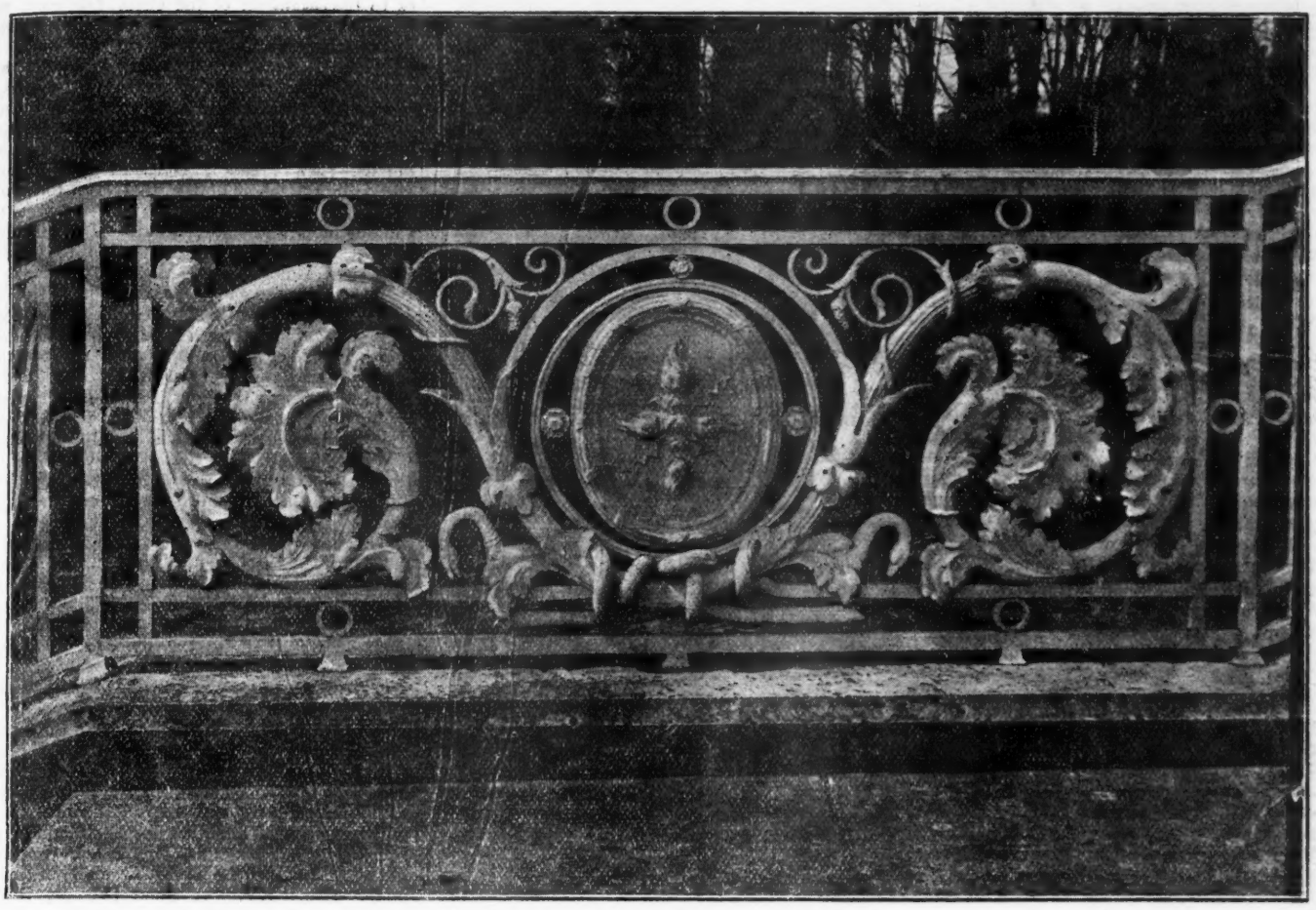
WHEN last I had the pleasure of addressing you, it was upon Renaissance ironwork, a subject, you were kind enough to assure me, that proved interesting. I doubt being equally fortunate now. As to the beauty and interest of Renaissance ironwork we were all agreed: there was no difference of opinion. But passing on to later periods we enter debatable ground, and had I ventured but ten years ago upon our subject to-night, I should undoubtedly have been proclaimed a Philistine. The theme is in fact the "rocaille," "rococo," "baroque," so much abused, and regarded as opposed to all the canons of the æsthete, and all the doctrines of modern culture. For twenty or thirty years it has been the correct thing to denounce almost all art later than the Renaissance. I have just come across an essay by a late assistant-keeper of the South Kensington Museum in which we are, *ex cathedrâ* as it were, required to get two centuries of rococo out of our bones. Baroque and rococo were detestable, to be eliminated where possible, and our great Art Museum would not lend itself to debasing public taste by exhibiting any of it in its galleries. Yet even then there were individuals like the Rothschilds, or Sir Richard Wallace, who bought these things at high prices. The French, always so much behind in art matters, treasured their rococo specimens as national property, and encouraged their reproduction, which, though most costly, were readily sold, even to English people, especially at exhibitions. The influence of South Kensington has long helped to restrain English decorators from using these styles. But it was only damming the stream. The wealthy and travelled leisure classes, having found that no kind of decoration ever invented so entirely accords with the refinements of life as they prefer to lead it, insist on Louis XIV. or Louis XV. decorations. This may be a sign of decadence—many say it is so—but for my part, having been brought up in a house with Louis XV. drawing-rooms, I say that as backgrounds for well-dressed company, assembled for pleasure or social intercourse, these styles of decoration and furniture are unapproachable. They are not styles for cottages, but for town houses of well-to-do society, and it is therefore important that designers who are to take part in decorative work should be brought up with some knowledge of them, and that they should not be tabooed, as they are in the government and other curricula. Ignorance of the styles in request will no more fashion good designers than ignorance of scientific truths will make good churchmen.

Now, but for the windfall of the magnificent Jones collection, students of decoration would have looked in vain for examples of these styles in our art museums. The works of artists like Caffieri, Gouttiere, Boule, names that are household words, to say nothing of English contemporary work from Wren to Chippendale and Adams, have been banished from our national art collections. How different was the view taken by the National Gallery, where artists of the baroque and rococo periods—Reynolds, Gainsborough, Romney, Hogarth—are so well represented. Even at South Kensington they bowed to the China mania, and admitted quite prominently Sèvres, Dresden, and Chelsea porcelain, which display all the vices that baroque and rococo can be charged with.

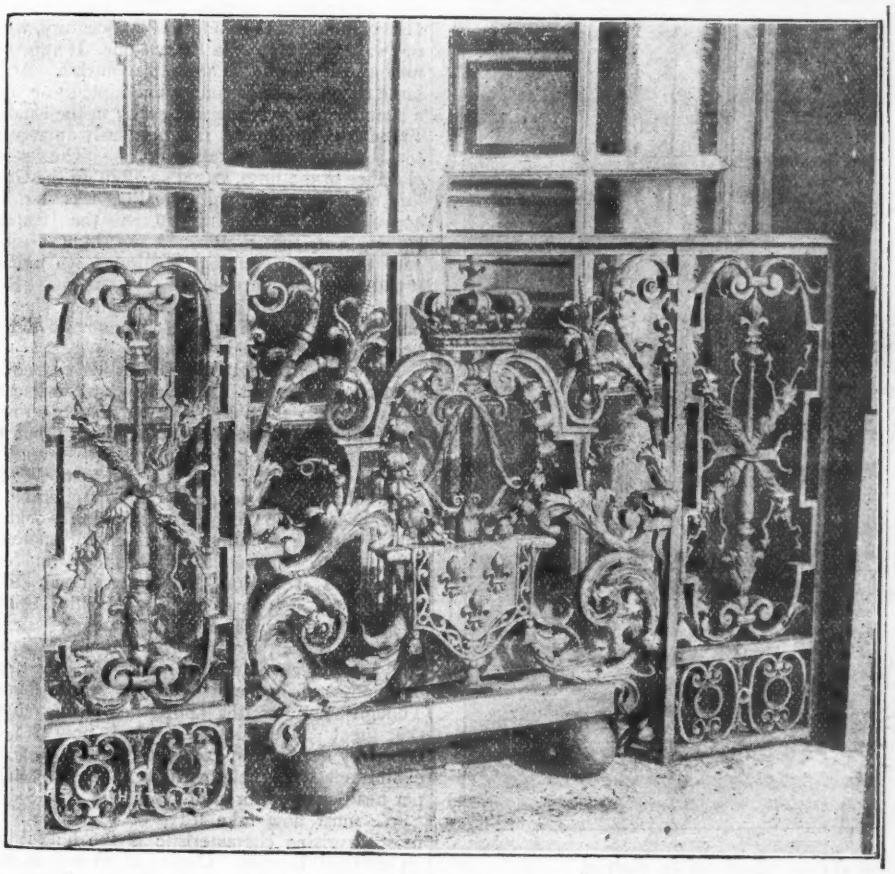
However, my task is not to praise or dispraise, but merely to give you some account of, and to put before you some examples to enable you to form your own judgment of the merits or demerits of the grand period of ironworking.

The style known as the baroque is distinct from and preceded the rococo. It appears to have originated with the Jesuits of Italy, and its birthplace was undoubtedly Rome. The Jesuits did not deliberately invent a new style, but it was the outcome of the endeavour to adapt Renaissance,—or shall we say Palladian?—architecture, to the purposes of Roman Catholic worship. The Jesuits were highly sophisticated, highly modern in their day, disliking Gothic as appertaining to the dark ages, and with a pronounced taste for richness and sumptuous materials. We do not, however, find any ironwork associated with the baroque until it had been introduced north of the Alps in countries where ironwork was habitually used in architecture. The effort to harmonise ironwork with the full rich lines of baroque decoration led to an entirely new treatment, which so far had merely been successive modifications of Gothic. But it would hardly have changed so rapidly and radically without some special influence, and we cannot be wrong in looking to the most commanding figure in the art world at that period in Europe—I mean Rubens. By building the Jesuit Church in Antwerp in 1614, after his long stay in Italy (all but the outside of which was unfortunately destroyed by fire in 1718), he introduced the baroque architecture directly to the notice of the northern art centre in the Low Countries, as well as to France. None but richly curving lines would satisfy him, and from the date of his popularity, we find the ironwork of Flanders, and still more of France, began to assume a distinct character. Baroque architecture demanded baroque ironwork, or none, and but a slight impetus was required to start the new direction. No genius existed so capable of giving the impulse as Rubens, and before his influence was at its height, it was brought almost to perfection. Rubens' sway was complete for a time, in the matter of art, at the French Court, and henceforth the style of ironwork known as baroque began to displace all others wherever Court influence extended. He introduced a new and all pervading artistic atmosphere, in which the new ironwork had its place, and the old was out of fashion. There is no tangible difference in the ironwork of Louis XIII. and of Louis XIV., whose taste for magnificence the baroque entirely suited. It is only a question of scale and elaboration. Mansions were built in a more spacious style in the latter reign; the forecourts were larger, and required gates and railings of more majestic aspect; while the magnificent staircases, occupying the very centre of the house, were provided with iron ramps and balusters, which stood forth as most commanding features. That is all the difference. In Italy the baroque never could have developed as it did in France, nor could it even in Germany; and it was doubtless nothing less than the overwhelming prestige of Rubens which caused it to develop so rapidly in the Art centres of Western Europe. I shall not trouble you with any illustrations of ironwork produced in the reign of Louis XIII. Paris abounds with specimens, such as the staircases of the Palais Royal and Bibliothèque, and the gates of the Parc de Carrouges; and at Fontainebleau there is the "*Escalier du Roi*," and many other excellent examples. The gates to the Apollo Gallery in the Louvre are superb specimens made early in the reign of Louis XIV. They were brought from the Château de Maisons, completed by Mansard in 1658, though so early as 1649 Evelyn observed that the "yron gates are very magnificent." An engraving shows that they were designed or modelled by Daniel Marot, but the maker's name is unknown. I fail to find much fault with the design; but at all events all must agree that the execution is perfect, and notwithstanding their size they are most exquisitely chased and polished throughout. The work made for Royalty was, however, naturally, at that time, the finest. Over a million livres was spent on the ironwork of Versailles alone between the years 1664 and 1680, a sum which even the Grand Monarque deemed excessive, and which led to the disgrace, and thus indirectly to the death of his great Minister Colbert. The names of all the master smiths who worked for royalty are preserved, and it became a fashion among them to publish books of designs, most of which are now rare and very valuable. Ironwork on a magnificent scale was being produced almost simultaneously for Versailles, Marly, Fontainebleau, St. Cloud, St. Germain, Chantilly, Choisy, Meudon, Clagny, Sceaux, Vaux-le-Vicomte; besides what was required for the palaces and hôtels of Paris. The Church was also assuming the position of a very important patron, among the choir grilles executed in the reign of Louis XIV., being those now destroyed of St. Denis and Notre Dame. The greatest architects of the day did not disdain to lend their assistance in designing this ironwork, which smiths whose renown extended over the civilised world were destined to execute. Superb ironwork designs are interspersed in the publications of men of the standing of Jean Lepautre, Jean and Daniel Marot, Jean Bérain, Langlois, and Jean Le Blond; while we know that the great Mansard designed the work for Clagny and Meudon, Girard that for St. Cloud, and Gittard that for St. Maur. The finest of these designs by great architects were excessively costly, and they were produced by a generation of smiths who enjoyed more lavish patronage than has fallen to the lot of smiths before or since, and whose works show an elation and pride

* A lecture delivered at the Society for the Encouragement of the Fine Arts, May 30.



At Versailles.



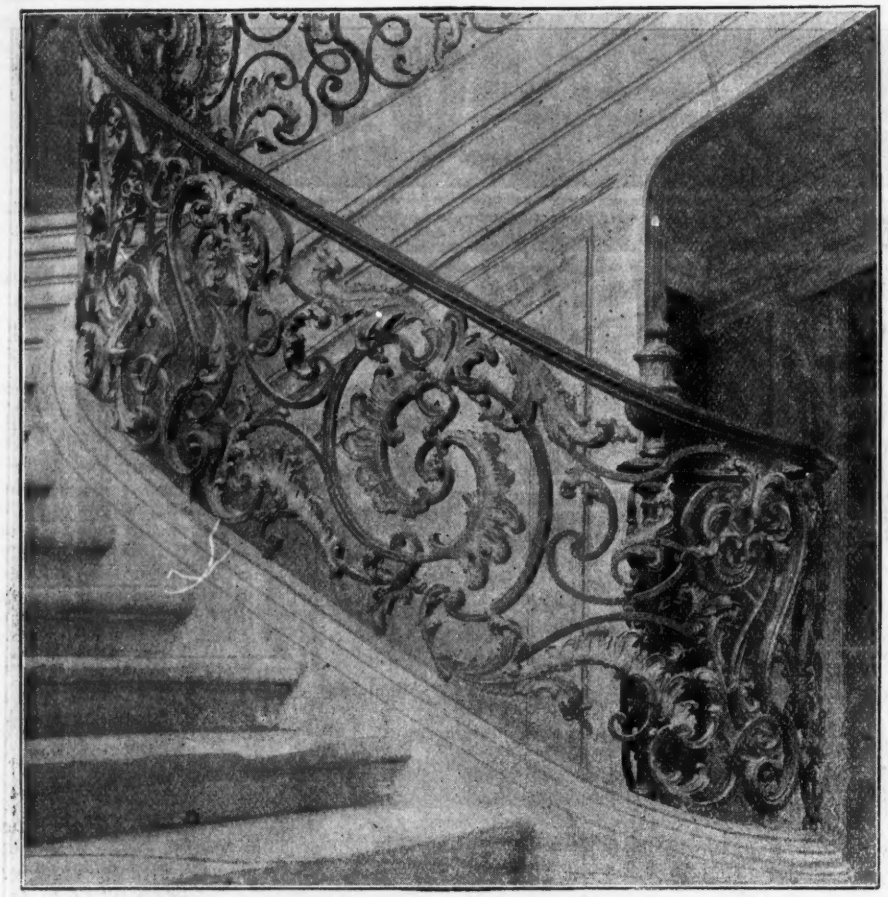
At Versailles.

of craft of corresponding degree. As the long triumphant reign of the Grand Monarque rolled on the style assumed a more and more massive grandeur, with yet more richly-flowing lines. One of the balconies at Versailles, probably the work of Simon Delobel, who made the doors for the "Escalier du Roi," is remarkable for the fine treatment of the acanthus leaves, and the consummate skill with which the lobes are gathered up and made to overlap by bold corrugations of the grandly modelled surface. The fluted stems and framing of the medallions are triumphs of smithing, and the serpents only too life-like. But one other example of the baroque can be examined, also from Versailles. It is designed in a lighter mood, but with all the pompous attributes of royalty. As a piece of workmanship it is faultless, and in design most admirably fitted to its surroundings. Ought such works to be condemned as so bad in art that they are to be excluded from our art museums? They were made during a period when magnificence was the fashion, and where magnificence is required they certainly do not fail to meet that requirement.

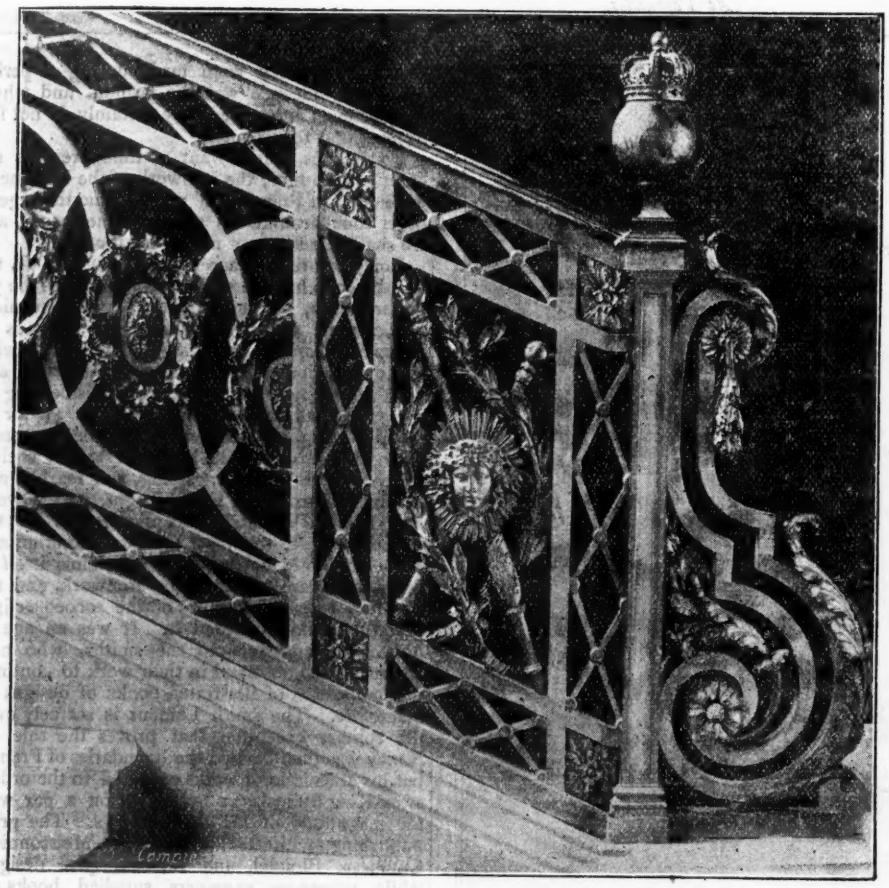
For reasons which want of time prevents my entering into now, the ironwork of the baroque as developed in France did not become the rage in other countries like its successor the rococo, and we shall therefore not meet with it again.

Long before the accession of Louis XV., the rich baroque had insensibly developed into the yet richer rococo, but it has been found convenient to designate the two styles respectively as of Louis XIV. and of Louis XV. The latter, owing to its capricious curves, curious mannerisms, and want of symmetry, is intrinsically displeasing to many, but its *tout ensemble* presents an air of luxurious magnificence not easily to be surpassed. Many people dislike it, but in a state of society which rejoices in silks, gilding, and marble, and requires a wealth of electric light, and flowers, and liveried servants, reception-rooms in the Louis XV. taste are most singularly appropriate. This stately luxury of style proclaims itself in every redundant curve of the ironwork, and the towering gates and grilles of the rococo eclipse everything that preceded it. It was an age of princely commissions to the smiths, who now appear far too absorbed in their work to continue the publication of illustrated books of designs as heretofore. The smith Lamour is scarcely even the solitary exception that proves the rule, for Nancy was then beyond the boundaries of France, but his atlas folio of works executed to the orders of ex-King Stanislas of Poland is on a par with the magnitude of his undertakings. The great publishing architects like Oppenort, Meissonnier, Cuvillées, Blondel, and Briseux, gave designs, while numerous engravers supplied books of patterns. The church, too, continued, and extended its munificent patronage of the smith, and scarcely a cathedral or abbey of France was unprovided with grandiose screens and choir grilles by the end of the reign. Those of Bourges and Amiens, some 20 ft. high, were designed by an eminent Court artist, Slodtz, and like the well-known grilles of St. Ouen at Rouen, were produced in this reign.

To illustrate the rococo ironwork, I have ventured to select the example of Lamour's work, which exhibits all the vices that can be charged to the style in the highest degree. Nancy was at that time, as I have said, on the German side of the frontier, where the style was always far less



Staircase of Hôtel de Ville, Nancy (about 1753).



Stair Balustrade at Compiègne (Louis XV.). Executed by Gabriel.

pure and restrained than in the heart of France. It is a panel of the staircase in the Hôtel de Ville, occupying one end of the Place Stanislas. The sharply-reversed curves and exaggerated endive leaves or cockscombs are, it must be confessed, in themselves not over-pleasing; yet what a charming picture this would make in the hands of a Meissonnier or Gêrome, were one or two ruffled and powdered figures descending the stairs. That even Lamour could be sublime, however, is shown by one of the grilles on the Place Stanislas, comprising a fountain. To realise the design you must imagine a similar grille with another fountain, a Neptune figure facing it; and the two opposite corners of the *place* filled with ironwork grilles *en suite*. These were erected, probably between 1750 and 1755, to the glory of Stanislas, ex-king of Poland and father-in-law of Louis XV. There is no record tending to deprive Lamour of the honour of designing as well as producing the whole thing, which he in fact claims in his atlas folio previously referred to. Whether the details are liked or not, there can be no two opinions as to the grandeur of the effect produced, and all must agree that we have absolutely nothing in metal-work to rival it in England. In presence of such work, produced without any effort, and in the usual course of business, I must confess that one feels very small, and that it is almost sacrilege to criticise. There is such conscientious working out down to the minutest details, such breadth, consistency and unity pervading the whole design, that even those who deem its direction wrong, must respect the thoroughness and masterly skill. I will content myself by merely calling attention to the fine metallic treatment of the pilasters, the swing of the work over the gangways, and the foil to the generally massy work supplied by the lace-like panels. Caviare, though it be to the multitude, there is something about the rococo that grows upon you as you study it; and I begin to suspect that our failure to appreciate it may not be altogether the fault of the style. Few, perhaps, can really appreciate Château Lafitte or Steinberg Cabinet. If time had permitted I would have made a fuller analysis of this style in France and exhibited a few more illustrations. There is, however, a good specimen at Holland House, and several in the balconies about Park Lane. The gates at Sèvres, the École Militaire, and the Paris Lycée may also be cited.

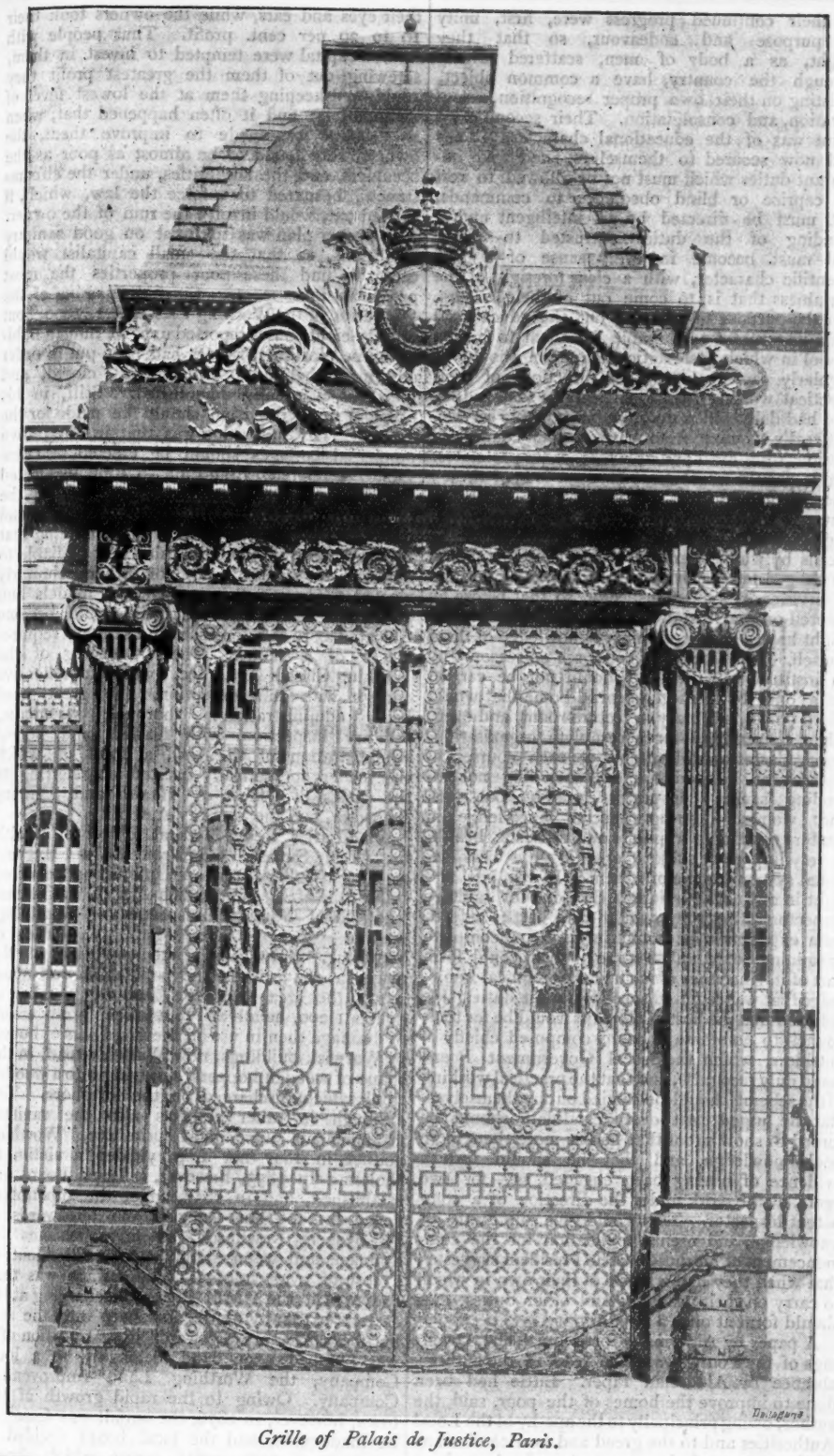
As the style of Louis XIV. existed before that monarch was born, so the styles of Louis XV. and Louis XVI. long preceded the advent to the throne of the monarchs whose names they bear. The designs by Challe for the church of St. Roch, executed in polished iron, with gilt bronze enrichments; the choir grille to St. Germain l'Auxerrois, which so delighted the clergy that they presented the smith, Pierre Deumier, with 12,000 livres over and above his contract price of 38,000 livres, and that for St. Germain des Près, designed by Oppenord, are all examples of work in the Louis XVI. style, executed under Louis XV. A good example is that from Compiègne by Gabriel. The Classic feeling, which contrasts so strongly with the rococo, by no means at that time abandoned, was introduced through the exploration of Herculaneum in the middle of last century, which re-awakened interest in the antique. It appears to me quite hard and modern by contrast. At the same time Classic ornament undoubtedly acquired a peculiar and very elegant *cachet* in the hands of French designers, and it is peculiarly appropriate to boudoirs and small salons. The severe elegance of the lines, based so often on the Greek key with festoons and wreaths, was far less appropriate to smithing than the fantastic rococo, yet the craft held its high position and the great smiths continued to achieve reputation and fortune in this reign. Even the king himself became a pupil of Gamain, making the third French king rumoured to have been an accomplished smith.

The grille to the Palais de Justice cost no less than 200,000 livres. The railing part is like the famous rail to the Petit Trianon, merely a row of bars ending in tasseled spear-heads; but the gates, by Bigonnet, are of massive grandeur. Magnificent as they are, you will scarcely need to be told that the design is quite inapplicable to wrought-iron, for though its execution would be simple to the founder, it presented enormous difficulty to the smith. It shows in some respects a reversion to Early Louis XIV. work, such as that in the Apollo Gallery of the Louvre. There are gates of similar style, by Fayet, to the old École Militaire, and magnificent staircase work in the Petit Trianon, polished and with gilt bronze foliage. Though few smiths published illustrations, the great advertising era had now set in, laudatory notices appeared in the *Mercure*, and exhibitions were held with as much as 3 francs per head charged for admission.

We must now take leave of French art. Its most surprising characteristic is the hold it took on civilised Europe. Copies of French fashions were universal, only becoming provincial and specialised in proportion to the remoteness from the French centre. Never since the Roman Empire had one people's art so complete a monopoly in Christendom.

[The lecture closed with some remarks on Italian, Spanish, and German rococo work.]

MEMORIAL PULPIT, BRERETON, STAFFORDSHIRE.—The Bishop of Shrewsbury dedicated a new pulpit at St. Michael's Church, Brereton, on the 31st ult. The pulpit, which is of oak, has been designed by Mr. Bridgeman, of Lichfield.



Grille of Palais de Justice, Paris.

MAGAZINES AND REVIEWS.*

THE *Studio* contains an article by "G. W." on "The Garden and its Art," chiefly in relation to Mr. Elgood's garden pictures, in which ideas are set forth with which we are entirely in sympathy. "Where houses are, gardens should be more or less designed in accordance with them," is a principle which every architect will echo. The article on Miss Mary Newill's work is accompanied by some admirable black and white studies of trees. An illustrated article on "A Japanese Course of Instruction in Wood Carving" gives some very suggestive illustrations of the development of simple forms of carved diapers in woodwork.

The *Magazine of Art* sends four numbers of "Royal Academy Pictures" (not completed), an admirable set of illustrations from this year's Royal Academy.

The *Architectural Record* publishes No. 1 of the "Great American Architects' Series," illustrating the work of Messrs. M'Kim, Mead & White. We do not altogether like to see a "firm" of three architects treated in this way. The volume contains a number of illustrations, chiefly of domestic architecture, many of which are admirable; but we should like to know which of them is the work of McKim, and which is Mead, and which is White. It is quite certain that three men together cannot design a building. There is a good deal of originality in many of the designs; in some, on the other hand, there is very obvious and apparently intentional copyism, which the editor has recognised by illustrating, alongside some of the designs, the buildings from which they are obviously copied or adapted; the Giralda, the Paris Bibliothèque, &c. Perhaps there is nothing better in the book than the design for a "Lifesaving Station," with its almost rude treatment in rough stonework—a kind of thing that American architects have learned to do better than any others.

The *Engineering Magazine* contains an article by Mr. J. B. Robinson on "The Proposal to License Architects," a subject which is exciting attention and discussion in the States as well as in Europe. The writer is entirely against it, and thinks the measure is intended "to restrict the number of accessions to the ranks of a profession which has of late been filling up rapidly." He wishes the public were a little less fond of being protected by kind people who volunteer to protect it, and a little more fond of protecting itself. That is one side of the question, and perhaps the best side.

The *Antiquary* includes "Notes on two Round Towers at Montepellier." These are two towers which flank and support the western porch of Montpellier Cathedral. An illustration is given of them, and very curious objects they are. The writer compares them, not unnaturally, with the round tower at Brechin in Scotland, and with some of the Irish ones. The resemblance is not exact in either case, but it is evident they came from the same workshop, so to speak.

The most important article in the *Reliquary and Illustrated Archæologist* is one by Mr. Miller Christy on "Dene-holes." Does the reader know what a "Dene-hole" is? It is a class of artificial caverns in the chalk, found mostly in Essex and Kent, with circular vertical spouts leading down into them. The vertical shaft is sometimes as much as 100 ft. deep, and penetrating the sand and gravel into the chalk, in which the excavation often ramifies into a series of caverns connected with each other. It is supposed that "dene" is the same word as "den." As a connected and illustrated account of a very curious set of remains of which not much is generally known, the article is well worth perusal.

The *National Review* includes an article by Mr. Harry Quilter on "Criticism and Art Production," which contains a great deal of plain truth and sound sense. Among the points touched on by the writer we may mention two. "Art," he says, "in which the artist retires behind his creation," which is always a mark of the finest work, is often unnoticed by the public and unpraised by the critics. But the latter, he urges, are placed in good positions exactly that they may see all that is passing and may prevent this injustice which the haste and competition of modern life are likely to cause. The other remark is to the effect that a great deal of the art criticism of the day is influenced by commercial considerations. He mentions one example of this within his own knowledge, which is significant and probably is not unique. In his depreciation of the landscape of this year at the Royal Academy, we do not at all agree with him. He asserts that the English painters have been driven to France for their teaching, and have acquired the French style in landscape-painting, which is based on the study of a different climate and conditions from ours, and that they are painting English in the French manner. As regards the majority of our best landscape-painters, the statement is absurd, and a comparison of the works by one or two English landscape-painters which are now on exhibition in Paris with the French work in the same exhibitions is sufficient to refute it, or ought to be.

In the *Fortnightly Review* Mr. Claude Phillips writes on "the Pictures of the Year," an article which, though we certainly cannot agree with all the views expressed in it, contains a great deal of very thoughtful criticism. Among other things he has hit the real weakness of Sir John Millais' principal work—viz., its lack of imaginative power; and he has done good service in pointing out the want of relation between aim and achievement in Sir E. Burne-Jones's picture of the "Fall of the Rebel Angels," in the New Gallery. As Mr. Phillips most truly says, "The fall of Lucifer is a subject so mighty that it may not be treated as a mere decorative pattern to be worked out, like the lovely 'Golden Stair,' with the aid of forms having more or less the semblance of humanity."

The *Nineteenth Century* contains an article by Mr. Richardson Evans, the promoter and hon. secretary of the "Society for Checking the Abuse of Public Advertising," on "Advertising as a Trespass on the Public," which we recommend to the notice of our readers. The Count de Calonne's article on "The Two Salons" is something more than mere picture criticism, and shows a remarkable breadth of view and absence of merely French prejudices. We observe that the writer expresses himself quite as strongly as we did in regard to the vulgar and offensive character of the large picture by Gervais, which has been officially purchased, and which, he says, is hardly fit to exhibit in public; so that it is evident that all Frenchmen have not the coarse taste displayed by some of their leading painters.

Harper contains an article by Mr. William Sharp on "Rome in Africa," with a number of small illustrations. It may direct popular attention to a subject which is far too large and too full of interest to be treated or illustrated in a magazine article.

* The object of these notes is to point out anything in the contents of the current magazines which is of special interest to our readers, with occasional brief criticisms on the views expressed in such articles. When a magazine which has been sent to us is not noticed, it is because that number contains nothing that it is within our province to comment upon.

The *Century* devotes a short article to the new Public Library in Boston (the building externally inspired by the Bibliothèque St. Genevieve), by Mrs. Van Rensselaer. This is the building for which, our readers may remember, Mr. Abbey painted that fine series of works in illustration of the Holy Grail, which was exhibited not long since in London. M. Puvis de Chavannes is also at work for it, as we observed in speaking of his picture at the Champ de Mars Salon. Mrs. Van Rensselaer's article is of no critical value, but it gives some information as to the progress of a great piece of collective artistic work, which is likely to do honour to America.

Scribner gives an account of "Chicago before and after the Fire," with illustrations of some of the old and new buildings, and also some from old photographs showing the aspect of some portions of the city immediately after the fire. The article on American wood engravers deals with the work of Mr. Frank French, which is illustrated by a frontispiece of his engraving after Deschamps' "Little Beggar Girl," as an example of his style.

The *Review Scientifique* publishes an article by M. G. Sorel on "Evolution Moderne de l'Architecture," to which however we cannot attach any value. The writer starts with a most absurd statement in regard to Greek architecture, that "La symétrie et la combinaison de formes régulières leur parrasaient tout à fait négligeables," and arrives at the evolution of modern architecture in the shape of iron combined with terra-cotta and cement. We have heard all this before, and we do not think it leads to much.

The *Monde Illustrée* includes a well-written criticism on the chief works of the Salons of this year, with some rather inadequate illustrations. The number also contains an article on the rebuilding of the Opéra Comique, giving elevations of four of the competition designs, including the selected one (which we published), the others being those of M. Esquié, M. Blondel, and MM. Larche & Nachon.

In the *Pall Mall Magazine* the article on "Portsmouth: Past and Present," gives some illustrations and annals of the past of a town which has a peculiar interest from the part it has played in English naval history.

The *English Illustrated* contains an illustrated article on the "Château d'If," by Mr. Walter Herries Pollock, the interest of which however, as might be expected, is rather sentimental than archæological.

The *Gentleman's Magazine* contains an article by Mr. Lionel Cresswell on "The Curfew; its Origin and History." He combats the popular idea of the Curfew being a tyrannical police act on the part of William the Conqueror, and gives other derivations and reasons for the word and the practice than those commonly held, for which we must refer the reader to the article.

London Society gives its readers a sensible article on the Spring Exhibitions of this year, containing some good critical remarks in a "light reading" vein, but disfigured by some very bad mis-spelling or printers' errors in names—"Velasques," "Studwick," &c.

Punch Pictures continues to appear monthly, and the last number contains one or two of the most charming of Leech's old sketches of children, which many will be glad to see again.

THE SANITARY INSPECTORS' ASSOCIATION.

A PROVINCIAL meeting and conference of the Sanitary Inspectors' Association was held at Worthing on Friday and Saturday in last week. The proceedings were opened on Friday in the Town Hall by the Mayor (Mr. W. H. B. Fletcher), who briefly but cordially welcomed the members to Worthing.

The real business of the Conference began on Saturday, when a public conference was held in the Town Hall, the Mayor again presiding.

The Mayor, in opening the proceedings, expressed great regret at the absence of the President of the Association, Sir B. W. Richardson, who was to have delivered an address, but who found it impossible to be present. Worthing was, he understood, the site of that projected city of Hygeia which it was proposed to form some years ago to carry out the ideas propounded by their President in a paper read by him at Brighton in 1875.

The President's address was then read by Mr. E. Tidman, C.E., F.S.I., the Honorary Secretary. After referring to the continued activity and success of the Association, the President said that the great points essential to their continued progress were, first, unity of purpose and endeavour, so that they might, as a body of men, scattered widely through the country, have a common object, insisting on their own proper recognition, remuneration, and consolidation. Their second great point was of the educational character. They had now secured to themselves fixed and important duties which must not be allowed to rest on caprice or blind obedience to commands, but must be directed by an intelligent understanding of the duties entrusted to them, and must become in every sense of a true scientific character, with a clear foresight of the usefulness that is to come out of their labours. For the purpose of carrying out the educational plan it would be advisable for them to have a school in which systematic instruction should be regularly carried out in the directions of their practical work. Occasional lectures such as they had had delivered were of unquestionable service, but really they ought to have regular courses, in session, from fixed and able teachers or professors. There should be at least three or four of these: one, chemical; two, statistical and hygienic; three, purely hygienic and practical; and four, engineering and construction. There should also be means by which every intending inspector should be obliged for one or two years to act under the supervision of a chief inspector, so that before he entered on practical duties on his own account, he might have a good preliminary knowledge of them himself. The President could see no reason why an institution of this kind should not be carried out at once by them in a central home that would afford offices, a library, a lecture-room, and every other convenience for a complete organisation. Good classes would attend at such courses of lectures as he had named, including not intending sanitary inspectors merely, but men and women desiring special knowledge in matters pertaining to public and domestic health. A very important subject regarding the examinational system was before them. It was just and right in any examination carried out for sanitary inspectors, that they should take part; indeed, from experience, he could imagine no complete examining board unless some of them could form part of it, since they alone had the technical knowledge that was required specially for the duties. He believed that the best of all plans would be for their council to nominate a board composed chiefly of outsiders, which the Local Government Board could duly recognise, and that the practical working of the scheme should be carried out by themselves. But he urged that every candidate should be forced to show proof that he has more than mere book-knowledge, and that he should furnish evidence of having been engaged, say, for two years, at the work under the direction of a competent inspector. This would give solidity to his knowledge, and useful application for the commencement of his duties. The President suggested that when they had a house of their own in which to carry on their teaching and other duties, they should form at once a good library.

A paper by Alderman Cortis on "The Dwellings of the Poor," was then read in the author's absence by Alderman Piper. Little had been done to improve the homes of the poor, said the author, owing principally to the apathy of the Local Authorities and to the greed and avarice of many of the owners of slum property, who have been encouraged to possess it by laxity in enforcing the law. He then referred to some of the evils resulting from this laxity, first of which was the increased mortality of the nation. In the central part of London the annual death-rate was about five per thousand above that in the north, south, east, or west. But this increased mortality was not the greatest evil—in fact, were the increase confined to the districts causing it, he should hesitate to call it an evil at all from a worldly point of view. Because—and this was the second evil—while they lived they waged a perpetual war against society, which to defend itself was driven to make laws curtailing the liberties of law-abiding citizens; they entailed also an immense loss on the nation by forcing us to increase our police, magistrates, judges, and juries, and eventually they had to be housed in our reformatories, gaols, and workhouses. Thirdly, they were schools of vice, entailing moral degradation on the pupils, to be disseminated through the length and breadth of the land. Another evil to which we were subjected through the existence of these congested districts was the importation of the pauper alien. Demolish rookeries and slums, and there would be no place for the pauper alien. Capital invested in the rotten homes of the poor yielded the highest interest—they were the dearest homes in the land—and simply because the sanitary authorities closed their eyes and ears, while the owners took their 10 to 20 per cent. profit. Thus people with limited capital were tempted to invest in them, screwing out of them the greatest profit they could, and keeping them at the lowest level of dilapidation; and it often happened that, when an attempt was made to improve them, the owners were found to be almost as poor as the occupiers, and the authorities, under the circumstances, hesitated to enforce the law, which, if carried out, would involve the ruin of the owner. The proper plan was to insist on good sanitary conditions, so that the small capitalist would cease to find these poor properties the most profitable investments. Since the passing of the "Housing of the Working Classes Act, 1890," out of forty-eight houses reported unfit for human habitation in Worthing, twenty had been put in order and made habitable, twenty-eight closed, and fourteen eventually demolished. Still, in his opinion, some provision should be made for the ejected. His suggestion was that in every town municipal cottages should be erected. These should be tenanted from time to time by ejected families, for the first year at a low rent, for the two following years or more at a fair and moderate one, always with an understanding that the tenants would after the third year be liable to removal, to make room for others similarly ejected. These cottages would be models and examples wherein the occupiers would become educated as to the domestic and sanitary requirements of a home. The "Housing of the Working Classes Act, 1890," was comprehensive enough with this exception, the great need being administration: thorough systematic, sanitary inspection, with fearless and honest administration of the law, a point on which the reader emphatically insisted on referring to the duties of Officer of Health and Sanitary Inspector, and the Sanitary Authority.

Dr. Charles Kelly, Medical Officer of Health for West Sussex, and Professor of Hygiene at King's College, read an interesting paper on "Death Rates," after which Mr. C. T. Gardner (the Chief Sanitary Inspector of Worthing) read a paper on the "Sanitary History of Worthing." Describing the condition of the place in 1845, when the population was about 4,000, the area 584 acres, and the number of houses 1,200, he alluded to a unique arrangement of drainage then in use on the first floors of houses in Warwick-buildings, now Warwick-road, in the shape of wooden hoppers, emptying into a wooden trunk which discharged on the foreshore. Yet, although in other respects also the sanitary arrangements were most primitive, Worthing neither in 1847 nor 1849 yielded a victim to cholera. In 1853, however, a Local Board was established, and in 1857, under the superintendence first of Mr. Ranger, and afterwards of Sir Robert Rawlinson, extensive systems for drainage and water supply were carried out at a cost of over 30,000*l.* The sewage was then conveyed to the Teville stream, discharging at the eastern extremity of the foreshore into the sea, but for some years afterwards a great portion of it was pumped upon land belonging to a local Company, the Worthing Land Improvement Company. Owing to the rapid growth of the town, however, in 1876, the outfall was found to be inadequate, and the local board decided to construct a new outfall sewer which should discharge its contents into the sea at low water. In the same year new machinery was added at the waterworks, costing, with the outfall, a further 14,000*l.* In 1881 improved regulations were made with regard to the water supply, and in 1884 further extension took place. In 1890 the Charter of Incorporation was obtained, and in the following year the census return showed a population of 16,606, an area of 1,425 acres, and houses numbering 3,189. In May, 1893, an unfortunate outbreak of disease occurred, and the Council decided to remodel and reconstruct the whole of the system of drainage and water supply. The sewage works were estimated to cost 40,000*l.*, and the waterworks 35,000*l.*, the Council having also decided to acquire the West Worthing Waterworks at a cost of 26,500*l.* In 1893 also the Sanitary Committee gave instructions for a house-to-house inspection of the borough, which had been proceeded with as speedily as circumstances would admit, the result being that upwards of 30,000*l.* had been expended by the various owners and occupiers within the borough to conform with the wishes of the Committee. It was apparent, concluded the paper, that the town was fast approaching its former prosperity.

A vote of thanks having been passed to Mr. Gardner,

Mr. W. W. West, of Walthamstow, Vice-Chairman of the Association, read a paper entitled "The Sanitary Inspectors' Association: a Review and a Forecast," in the course of which he said that the Association must press onwards on the lines already laid down. They had to endeavour that the certificates of competency, which, in future, would inevitably be required of every candidate for office, should be of such value as to justify the confidence of the local authorities. They had been hoping to secure this by the establishment of a Government examination, and when they included in their ranks the whole of the inspectors in the Kingdom that they would get — recognising that they must spare no trouble or expense to enrol them. Having secured that all persons coming forward as candidates should be fully qualified by education and training, and show evidence of practical and theoretical knowledge, they would be in the strongest possible position for pressing upon the Legislature the need for investing them with the duty of inspection of their districts, that duty, of course, to be rendered possible by the possession of the necessary powers on the part of the inspector.

At the conclusion of the meeting, the members were entertained at lunch at the Assembly Rooms by the Mayor and Corporation, after which the gathering dispersed, when some of the members were taken for a circular drive, and others for a trip to sea.

Illustrations.

VIEW OF NORTHAMPTON INSTITUTE.

THERE is little to say about the Northampton Institute beyond what we have already published. The building, as shown in the drawing, is completed externally, but of the remainder of the work some is only just commenced, and some cannot be begun until the leases of the existing houses fall in, next Michaelmas. But this drawing was partly executed from sketches made on the spot. The statue in the apex of the large gable represents "Truth," and is executed by Mr. P. R. Montford, who has prepared also a very good design for the carving over the principal entrance.

The great hall is the principal part of the building at present in hand.

The roof has a span of 67 ft., and is made of steel, by Messrs. Moreland & Sons.

The ceiling inside is made from the architect's design by Mr. Gilbert Seale, of Camberwell.

The glazing over the swimming bath, shown on the left of the drawing, is by Messrs. Rendle & Co. The builder is Mr. Walter Wallis, of Balham. The Skinner's Company is finding great part of the endowment of the building, and is taking a leading part in the work generally. Mr. E. W. Mountford is the architect.

DESIGN FOR A GARDEN PAVILION OVERLOOKING A LAKE.

THIS is the design to which the Tite Prize for 1894-5 was awarded by the Institute of Architects this year. The author of it, Mr. R. Shekleton Balfour, gives the following description of his intentions in the design:—

"There was but one defect in the otherwise ideal subject set by the Royal Institute for the Tite Prize, 1894-5, viz., the obviously inadequate area of 2,000 square feet for a building which, according to the conditions, was to comprise a boat-house, saloon, vestibule, retiring-rooms, and kitchen, together with all terraces and flights of steps.

A monumental building, and its corollary a symmetrical plan, and the observance of those principles upheld by the masters of the Renaissance, are also essential for the successful accomplishment of this competition.

In the design illustrated, the circular saloon is entered from the garden side through a rectangular vestibule, at either end of which doors lead to the retiring-rooms. The saloon was intended to have a black and white marble floor inlaid with the signs of the zodiac, the walls being treated with large panels of Sicilian marble and mahogany doors, and a broad frieze of flower-garlanded children in white and blue Della Robbia ware, occupying the space between the composite order of the interior and the spring of the coffered dome. The two semi-circular niches would be filled with statuary, and the corresponding doorways lead, one to the kitchen, and the other to the staircase communicating with the promenade on the flat roof surrounding the dome. On the lake front, flights of steps lead upward from the landing-stage on either side of the great archway, through which a water access is obtained to the boat-house, to the open loggia before the saloon. From the landing-stage, bronze gates conduct to the garden walks by the water.

In the general design, mass, simplicity, and breadth of effect were aimed at, rather than intricacies of form and elaborate detail.

R. SHEKLETON BALFOUR."

Old Thatched Cottage, Paddington.

BADSWORTH GRANGE.

THIS house was recently erected at Badsworth for the Misses Heywood Jones, of Badsworth Hall.

The site falls considerably to the east. Advantage has been taken of this to arrange the gardens and grounds at several levels, so that from the terrace of the upper gardens there is a view over the walled gardens, which are 9 or 10 ft. below the terrace. A convenient arrangement of steps gives access by degrees to the main front. To meet these different levels the floors of the hall and principal rooms are some 4 ft. above those of the entrance porch and offices, so that the windows of the best rooms are a foot or so above the level of the lawn of the middle garden, and at least 5 ft. above the garden of the south front, and the carriage-drive on the east front.

The house is built of local freestone, with red tiled roofs.

The sitting-rooms are finished in white, and the hall and staircase panelled in oak and floored in teak.

Mr. C. J. Ferguson is the architect. The drawing (by Mr. E. Ridsdale Tate) is exhibited at the Royal Academy.

HOUSE AT OXTED.

THE drawing for this house was exhibited in the Royal Academy of last year. The house has not, however, yet been commenced.

It is intended to use Limpsfield stone for the lower portion. The upper story is to be plastered externally, the half-timbering being in oak. The octagonal stair-turret giving access to the servants' bedrooms is to be covered with copper.

HARRY REDFERN.

DESIGN FOR A SMALL COUNTRY HOUSE.

THIS house has been designed with a view of providing, in an inexpensive manner, a small country house, with a few of the additional comforts and attractions beyond the four square walls of each room, and especially with that of securing one good large living room.

The materials for the elevations are red tiles for the roofs and upper part of the fronts, with half-timbered work introduced as shown.

For the lower story the buttresses are of red brick, also the plinth, the remainder of the walls being covered with rough cast stopping at the plinth level.

The roof over the bath-room, hall, bay-window, &c., is of grey-stone slates, the pitch being a little flatter. In this district, where pantiles have formerly been very largely used, it is a very common thing to find the eaves furnished with two or three courses of grey slates (at a flatter pitch) before the tiles start. The drawing was exhibited in the Royal Academy of 1894.

ARTHUR A. GIBSON.

OLD THATCHED COTTAGE, PADDINGTON.

THIS is a sketch of the cottage referred to in our "Note" on page 371 *ante*, which will probably shortly be pulled down. The sketch was kindly made and sent to us by Mr. Walter R. Jaggard, since the appearance of our paragraph in regard to the cottage.

ARCHITECTURAL SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The annual general meeting of the Edinburgh Association was held on the 29th ult. in the Royal Institution, Princes-street, Edinburgh, Mr. W. W. Robertson, F.S.A. (Scot.), President, in the chair. The Treasurer (Mr. John Johnston, C.A.), intimated that the membership had increased to 295, and that the state of the funds were in a satisfactory condition. Other reports were submitted and were approved of. The following office-bearers were elected:—President, Dr. Rowand Anderson; Senior Vice-President, Mr. Thomas Ross, F.S.A. (Scot.); Vice-President, Mr. J. Balfour Paul, Lyon King-at-Arms; and the Secretary, Treasurer, and Librarian were re-elected to their respective offices. The President in his valedictory address, after referring to the great success which had attended the visits of the Association during the past few months, and to the large attendances, suggested that all members interested in these visits should communicate either to the Secretary or the President suitable places of interest as they occurred to them. He afterwards referred to the fact that in his inaugural address three years ago he had spoken of the various projects which from time to time were heard for the rebuilding of the City Chambers or of their removal to the New Town. He was glad to say that the question had now been definitely settled, and settled satisfactorily, by the Town Council, on the initiative of the Dean of Guild. The Council, he said, was now acquiring property in the neighbourhood which would give the accommodation required and would complete the building in a satisfactory manner. The effect of what would otherwise be a very dignified square was marred by the inclusion of the block at the north-west corner, which was now to be removed. He hoped that when the work was completed the Council would see its way to improve the façade to the High-street, which was marred by the intrusion of a range of very second-rate shops. If these shops were replaced by a system of suitable arcades the City Chambers would then be housed in a building which would be a credit to the city, and which would possess a repose and

dignity which would probably be looked for in vain in modern buildings—qualities which the exigencies of modern competitive designing went far to render impossible. Referring to the widening of the North Bridge and the probability of a demand being made for the removal of the Tron Church, the President strongly reprobated any such event as interfering with an interesting landmark connecting modern times with the time of Charles I. The new President then took the chair, and returned thanks for the honour the Association had conferred upon him, and votes of thanks to the retiring President and the other office-bearers brought the proceedings to a close.

Books.

History of the Tower Bridge and of Other Bridges over the Thames, built by the Corporation of London. By CHARLES WELCH, F.S.A., and J. WOLFE BARRY, C.B., M.Inst.C.E. London: Smith, Elder & Co.

ALTHOUGH this book has "History of the Tower Bridge" as its main title, it is really as much concerned with other Thames bridges; old and new London Bridge occupying, in fact, a large portion of the book. As Librarian of the City of London, Mr. Welch has of course exceptional access to sources of information as to the history of the works carried out by the Corporation of London, and has put a great deal of interesting record into a small compass, along with some illustrations taken from old drawings and engravings. The history of old London Bridge, as given here, is a curious example of perseverance and persistence in keeping up a structure which, for centuries, seems to have been in constant danger of collapsing through bad construction, and kept its custodians in a constant struggle with it. "The history of the bridge is almost a narrative of repairs. Only fourscore years had passed after its completion in 1209, when the structure was so decayed through want of repairs, that men were afraid to pass over it. Thus early did the bridge gain a reputation for frailty." This state of things continued till the final demolition of the bridge after the erection of Rennie's grand structure. "The history of London Bridge during the eighteenth century consists of doubts whether the bridge would stand, surveys of its buildings, repairs, reports of architects, schemes for its alteration, and controversies concerning the erection of a new bridge." An old engraving is reproduced showing the bridge-gate in 1610, with its ghastly burden of heads and skulls sticking on poles at the top, at all angles, like pins in a pincushion. A special section is devoted to the chapel "St. Thomas of the Bridge," which was erected on the centre pier, with an illustration of the west front, in which the buttresses are drawn in perspective, but a scale of feet is added as if it were an ordinary elevation. This addition of the scale looks as if it were the author's, and shows in that case rather a confusion of ideas as to the use and application of the scale. The building was divided into an upper and lower chapel, the lower vaulted, the upper covered with a very low-pitched timber roof with heavy tie-beams, and three longitudinal beams notched on to them. The tie-beams rest on the capitals of wall-shafts carried up to the cornice, as in a Norman building with a timber ceiling. There is a good deal of information added as to the services held in the chapel, and the furniture and ornaments connected with it. An illustration, dated 1827, is also given of the old bridge house, a rather picturesque timber erection on Classical lines, with a small square tower carried on columns, leaving an open porch at the ground story.

A sufficient account is given of the new bridge and its construction, partly in Rennie's own words, and the history of Southwark and Blackfriars Bridges is briefly sketched with illustrations.

The description of the Tower Bridge, and its design and construction, by Sir J. Wolfe Barry, forms a separate section of the book, and is useful for the information given in regard to structural treatment of the work, while bringing out in melancholy prominence the extraordinary confusion of ideas of the modern engineer as to what constitutes "architecture." After the span of the bridge was increased by the requirements of Parliament, we are told, "it became apparent that it would be impossible to support the weight of the bridge on towers wholly of masonry, as in the first design, unless they were made of great size and unnecessary weight." Why "unnecessary"? The only meaning one can attach to this curious piece of logic is, that it means "unnecessary" for their own stability as masonry structures. But that was not what they were to be built for; they were to be built for a special purpose for which extra strength was necessary, and therefore could not be called "unnecessary." The engineer proceeds: "It was consequently requisite that the main supports should be of iron or steel, which could however be surrounded by masonry, *so as to retain the architectural character of the whole structure.*" That is the conception which a modern engineer has in regard to what constitutes "architectural character." It means masonry, whether put up for a genuine purpose or not. After that it seems hopeless to argue the point. In stating subsequently that stone work was a good protection for steel, and that the staircases to the high-level bridge required covering in from the weather, Sir Wolfe Barry's argument is more reasonable; and if a masonry tower had been built round the steel towers on its own foundation, with stair turrets at the angles and open arches at the top showing the steelwork and the connexion of the suspension-chains with that to which they were really attached, there would have been something to be said for it. But to build a skin of masonry actually carried by the material which it conceals, and to which it is supposed to give "architectural character," is an absurdity beyond anything that we have known in the whole history of architectural shams; and to our thinking it is a constructive absurdity also. A large construction in steel is a thing subject to constant movements of expansion and contraction, and we shall not be surprised if in time it is found that the masonry refuses the combination, and is unsettled and cracked by the steel-work.

We were the first to call attention to the essentially unarchitectural character and conditions of this structure; a criticism which brought on us some comments in general newspapers as absurd and illogical as the Tower Bridge itself, and one or two private communications in the nature of what may be called "threatening letters." But we have been fairly surprised at the unanimity with which we have found our view supported by architects and artists of all classes. Among these we have found the architectural design of the Tower Bridge universally condemned and ridiculed, and that with an energy of language and an amount of indignant feeling, which goes far beyond anything that has appeared in our columns.

Numismata Londinensa: Medals Struck by the Corporation of London to Commemorate Important Municipal Events. With Descriptive Notices. by CHARLES WELCH, F.S.A. London. 1894.

THIS book, prepared by authority of the Corporation of London, and under the direction of the Library Committee, has some affinity with the last-named, in spite of its very different title, as one of the medals was struck in connexion with the opening of London Bridge, and the chapter concerned with it includes a history of London Bridge, containing a good deal of the matter in the volume previously noticed, stated in a slightly different form. The other medals mentioned are in commemoration of the opening of the Coal Exchange in 1849, the foundation of the City of London School, the opening of Blackfriars Bridge and of the Holborn Viaduct, the foundation of the City of London School, and reception by the City of various royal and eminent personages. Good illustrations of all the medals are given, and it is with these that we are chiefly concerned. It will hardly be expected that we should find in these medals such delicate art as that of the great French medallists, Roty and Chaplain; the ideas in some of them are good, but the execution is comparatively coarse in detail (as far as one can fairly judge from very careful engravings), and it strikes us that the older ones are better than the more recent examples; more delicately executed and in lower relief. That to commemorate the passing of the Reform Bill in 1832 shows a significant design on the obverse, and a pretty treatment of the reverse, with its chaplet of flowers, though these are a little too realistic (according to the taste of the day). In the medals connected with the opening of structures the reverse is generally occupied by a representation of the structure; and though this is not a kind of representation which is artistically suitable to the conditions of medal engraving, it is a use of medals consecrated by the most ancient custom, and which gives to many antique medals their principal historical value. The interior view of the Coal Exchange, with the dome not in true perspective, is, however, rather an unhappy instance. The medal on the recovery of the Prince of Wales shows on the reverse the interior of St. Paul's with a worshipping throng, which is better managed. Excepting the last named, all these medals, as well as others of the older ones, were by Mr. Benjamin Wyon; the Prince of Wales medal is by Messrs. J. S. & A. B. Wyon, and is one of the best in the collection. By the same hands is the Princess Alexandra reception medal, in which the head of the Princess is finely treated, but the reverse with the Princess in crinoline received by the Queen in a classic robe, and a winged angel standing behind her, is too absurd. The City of London School medal, by Messrs. J. S. & A. B. Wyon, shows a good medallistic architectural treatment on the reverse. The reverse of the medal commemorating the granting of the Freedom of the City to Prince Albert Victor, by Mr. S. G. Adams, is, like that of the Princess Alexandra medal, absurdly realistic, a quality the more brought out by the too high relief used. There are others which, both in conception and treatment, are melancholy pieces of commonplace. Mr. Bowcher's reverse for the reception of the King and Queen of Denmark, showing the City of London personified by a seated female figure, with an architectural background indicated in very low relief, is one of the better ones. On the whole the collection is not calculated to give a very high idea of our national art in the department of medal designing; but it was worth while to make a literary record of it, as of some historical interest.

The Practical Telephone Handbook. By JOSEPH POOLE, Whitworth Scholar; Chief Electrician to the New Telephone Company, Manchester. Second Edition. London: Whittaker & Co. 1895.

THE second edition of this useful manual contains new chapters on Metallic-Circuit Working and on Electrical Measurements. Considerable alterations and additions have also been made in other parts, especially in the chapter on Underground Work, which has recently been adopted so extensively in this country. This book can be thoroughly recommended, and its title describes its contents accurately. The second edition comes out at an opportune moment, when so many technical questions connected with telephones are being discussed before the Select Committee of the House of Commons. Clear descriptions are given of the special exchange systems used by the British Post-Office and the National and Mutual Companies at Manchester. Readers will understand the difficulties that the London National Telephone Co. has to overcome in substituting the twin-wire for the single-wire system, as they have no less than thirty-four separate exchanges.

The additions to the book distinctly add to its value. No elaborate rules for locating faults are given, as telephone lines are generally not more than half-a-mile in length, and a linesman would be able to clear the trouble before the position of the fault was found out by a test. Mr. Poole complains that wiremen cannot be got to use the special dynamometers constructed for regulating the sag of wires, but prefer to use their own judgment. We sympathise with Mr. Poole, but are not surprised at the wiremen.

His instructions to inspectors are very clear and concise, and would be profitable reading to every user of the telephone. For example, the diaphragm is often buckled by users poking pencils at it, and the receiver spoiled by being dropped.

The chapter on electrical measurements is good, and is obviously written by one who has tried many methods, and fixed on the best practical ones. For measuring battery resistance he gives Munro's method and not the "telephone" method, a self-denial on his part which deserves praise. An appendix gives good descriptions of the "Hunnings Cone" Transmitter, Mercadier's Bitelephone, &c., with many other recent improvements difficult to find described elsewhere. It also contains a short abstract of Mr. Preece's paper "On Notes of a Trip to the United States and to Chicago."

There are one or two misprints, as in the formula for the Post Office Bridge, and in spelling names like Munro and Clark with an *e* at the end.

Electric Light for Country Houses. By JOHN HENRY KNIGHT. London: Crosby Lockwood & Son. 1895.

THIS little book aims at giving in a popular manner, information likely to prove useful to people living in small country houses who may desire to know how much it costs, and how to set up a

small electric lighting plant. The author seems to have managed to light his house cheaply, the whole installation of his sixteen lamps not costing more than 90*l.* He uses an oil engine, and as these engines are gradually coming into favour for small plant in isolated situations, the account of its performance is interesting. That it makes no objectionable smell is certainly a strong point in its favour. The book is a fairly trustworthy one, the only objection that can be taken to it is a lax use of electrical terms. For example, the author says, "Electric current is sold by the companies by the Board of Trade unit—that is 1,000 watts." He might as well say that leather belts were sold by horse-power.

Electricity in our Homes and Workshops. By SIDNEY F. WALKER. London: Whittaker & Co. Third Edition. 1895.

THIS book contains descriptions of electric batteries, telephones, and bells, but contains nothing about dynamos, motors, or lamps, hence the title is very misleading. The chapter on telephonic apparatus has been rewritten, descriptions of the latest forms of apparatus being given. A short chapter on the so-called "dry batteries" has been added, these batteries having come into extensive use. On electric mining signals Mr. Walker is an authority, and his descriptions of the special apparatus suitable for mines, and the precautions that have to be taken, will be valuable to mining engineers. A better title to the book would be "Electric Signalling in Houses and Mines."

Correspondence.

To the Editor of THE BUILDER.

FELLOWSHIP OF THE INSTITUTE.

SIR,—As one of the many Fellows of the Institute living in the country, and surrounded by builders, surveyors, auctioneers, and others who profess and call themselves architects, which is, if not an injury to us, certainly a great one to our Art, I do not find that people, who value *good*, rather than *cheap*, building, or art in any form, place very much reliance in such professors; and the only strength that we can rely on is to be found in honourable conduct, a desire to do good work for its own sake, combining good planning and arrangement with all the beauty of proportion and detail that funds will permit, and with breadth and dignity, where these are limited. It is difficult, of course, to persuade the public that the true test of good work is more frequently found in the latter instance than when money is found for mere elaboration, and I take it that the Fellowship of the Institute is as much the just reward of those who have done and do their utmost to be beautiful and true under difficulty, as to those who have greater opportunities. Personally, my only jealousy lies against those who throw away, or fail to live up to, the chances of doing noble things when they have them, but perhaps time may render this more difficult when greater pressure on this point is brought to bear upon us by a wiser and more discerning public.

The sensible views conveyed to your readers in the leading article of last week's *Builder* cannot fail to carry weight, and specially your comments on the remarks of Mr. Phené Spiers, who, as most of us know, is an artist *par excellence*. After all, architectural design and draughtsmanship is *a means to an end;* and instances are not wanting, both in ancient and modern work of beautiful designs poorly *constructed*, nor do I think that such will be less frequent if care and practical ability are to be entirely ignored for mere power of design, *per se*, or "Art and Art alone."

"Something there is more needful than expense,
And something e'en than taste—'tis sense,"

I would on no account depreciate beauty in design, but merely try to show that though a great part of architecture it is by no means the *whole* of it.

"RUSTICUS."

THE WILLESDEN SCHOOL BOARD COMPETITION.

SIR,—The old subject of unfair competitions again takes up a considerable amount of your space, and will, no doubt, continue to do so until architects accept Mr. Caröe's advice as published in your last issue.

I am a member of the Willesden School Board, and also an architect. With this double experience I have come to the conclusion that these frequent complaints are absolutely useless whilst eminent architects are willing to enter what, under ordinary conditions, can but be lotteries. There are many people—some of them members of public bodies—who do not distinguish between sections and elevations, and who are unable to see the relationship of perspective and elevations, but they do understand the value of money; therefore, the "lowest estimate" has a charm for them, which even a highly coloured perspective does not possess. In this Willesden competition some of the members were in favour of "the lowest estimate," others, again, preferred the design (or its author) placed last by the assessor; it was, therefore, impossible to get a majority to uphold the assessor's award, a result which *might* have been obtained had not Mr. Caröe, as he says, sent in an honest price.

It is certain that this kind of ignorance, and perhaps this tendency to favouritism, will not be got rid of if all your valuable space, from now until doomsday, be given up to the subject.

Reform must come from the competitors, and not even from them as individuals. They must take a leaf om the book of the trade-unionist, however unpleasant such a step may at first appear to be; they must get their parliament of Conduit-street to formulate a law of competitions which shall be binding on the members of that body not to compete with each other under unfair conditions of labour, and public bodies will soon begin to advertise competitions under "Institute Rules," just as they are now asking for contracts with trade-union wages. Until something of the kind is done competitions will be "won," as a great number of them are now, by "getting hold" of the members of the committee, not by any merit in design.

Harlesden, N.W. JOHN CASH.

The Student's Column.

BRICKS AND TERRA-COTTA.
XXII. AND XXIII.

ABSORPTION (*continued*).

IF now we take a brick, break it in halves, and submit both to absorption experiments as detailed in our last article, we shall find in many cases (in all that we have tried) that the sum of the amount of water absorbed by them is a higher figure than that derived from similar experiments on the whole brick. This difference will be most noticeable on pressed and the hardest kinds of brick, and least on those which are soft and very absorbent. The effect on half bricks when used as "headers" may thus be easily imagined. Such results clearly show that in the majority of hard bricks, however well they may be burnt, the outermost portions act as a thick skin of a less impervious character than the bulk of the interior. This phenomenon is not well brought out by testing the material for its capillarity unless a longitudinal slice of the brick is prepared for experiment. In dealing with an inferior quality brick that had been glazed (apparently a salt glaze) we ascertained that it imbibed only 3·5 per cent. of its dry weight of water in a week; by drilling, or rather chipping, several small holes into it through the surface glaze, the same brick absorbed 10·73 per cent. in the same time. Of course, the brick was thoroughly dried before testing it a second time, the drying taking place until it had returned to its original weight. This seems to show that although a glaze acts as a preservative when the brick is not chipped in being put up, if any portion of it is removed by accident—and it is very brittle—the brick derives no benefit from its vitreous covering.

In 1868 a committee of the Manchester Society of Architects made careful experiments in regard to the absorptive powers of several local bricks. They differ from those we have carried out in several particulars, as will be seen. The following is a table showing some of the results obtained by that committee:—

In these, the bricks were entirely immersed in the fluid, and the percentage was calculated with reference to the volume of each piece. There are certain advantages in this method, but we think a clearer idea is gained by calculating the rate per cent. by weight. The committee made a number of other tests, which may be summarised as follows:—One series showed the rate of absorption when the bricks were placed on edge in ¾ in. depth of water, whilst another gave the actual quantity of water absorbed per cubic foot of brick at stated intervals. The results proved that all the bricks, save one, became saturated thoroughly within 14 hours, some, indeed, in 2½ hours. The quantity absorbed was not in inverse ratio to density, the most dense imbibing 18·6 per cent. of their bulk of water. The rapidity with which the water was absorbed was most contradictory, and in this respect agreed very well with our own results (*ante*, p. 397). One brick, which in the first ¼ hour absorbed 30 per cent. of its total quantity, as against 47 per cent. in another, had at the end of 2½ hours surpassed the latter in the ratio of 85 per cent. to 68¾, though far behind a third brick, which had absorbed 98 per cent. The majority of the bricks, when immersed, absorbed the water more rapidly at their sides and ends than at the top and bottom, as shown by air-bubbles; hence the committee was led to the conclusion that it was desirable to apply pressure, in moulding, in a different direction to that in which it was generally applied. Judging from our own observations on this matter (of course, with reference to unglazed and medium-burnt bricks), it would appear that the position in which the brick is stood in the water and the depth of water covering it are the controlling factors. Nearly all the bricks we dealt with allowed air-bubbles to escape with tolerable uniformity over the whole surface, though here and there they emerged in continuous streams as from a very open pore well supplied from the interior. It may be that superior methods of manufacture have removed the objections raised by the Manchester committee referred to.

In connexion with the subject of damp walls the following experiments are of interest; they show the rate of drying of five different bricks, after having been fully saturated and placed in air the temperature of which was estimated at about 65 deg. Fah. (see Table II.).

It will be noticed that in these experiments the figures showing the proportion of water parted with at the several stated periods are calculated (as in some of the absorption experiments alluded to) with reference to the quantity absorbed when the bricks were fully saturated. None of the bricks became thoroughly dry after being left in the air for eleven days, but in practice the case would no doubt be different. The surfaces exposed to the rays of the sun and the general temperature, would surpass 65 deg. Fahr. in summer time, and the action of the wind in drying out moisture would be considerable. The only value the above-mentioned results can have, therefore, is to determine the relative facilities of drying, in bricks dealt with under precisely similar conditions, in uniform temperature. We notice that the bricks which parted most eagerly with their moisture at first, were the longest in drying, and *vice versâ*, a fact that might not have been anticipated. At the end of four days they were nearly all on an equality, and after that time Nos. 1 and 2 surpassed the others in rapidity of drying.

Bricks Nos. 3 and 4 behaved in a rather re-

TABLE I.—*Absorption Experiments.—Manchester Bricks.*

DESCRIPTION OF BRICK.	Contents.	Weight.	Weight per Cubic Foot.	Water Absorbed by Total Immersion.		Percentage of Water Absorbed to the Volume of the Brick.
	cub. in.	lbs. ozs.	lbs.	ozs.	cub. in.	Per cent.
Common Hand-made, average of ten samples	103·50	6 9·25	109·75	11·60	20·05	19·38
Machine-made	140·12	8 15·5	110·60	19·67	34·00	24·26
Machine-made	116·04	8 4·5	123·39	12·50	21·60	18·60
Machine-made	114·85	7 15·5	120·00	9·87	17·00	15·00

TABLE II.—*Experiments on Rate of Drying.*

DESCRIPTION OF BRICK.	Full Quantity Absorbed.	PER CENT. OF TOTAL ABSORPTION LOST.							
		In 4½ hours.	In 1 day.	In 2 days.	In 3 days.	In 4 days.	In 5 days.	In 6 days.	In 11 days.
	ozs.								
1. Machine-made, Manchester.....	20½	8·6	32·1	50·6	69·1	81·4	86·4	90·1	96·3
2. Light-coloured, machine-made	12½	4·0	34·7	61·2	75·5	81·6	85·7	89·8	96·0
3. Hard, Bradford	8¾	8·5	42·9	68·6	78·0	81·0	82·9	—	94·3
4. Machine-made.....	8½	—	50·0	63·6	72·7	76·4	78·0	82·0	82·0
5. Hand-made, Collyhurst.....	14¾	3·4	30·5	54·2	74·6	81·3	86·4	89·8	91·5

markable manner. At the end of the first day, in spite of the fact that they were not very absorbent materials, they had lost 42·9 and 50 per cent. respectively of the total amount imbibed. This, on comparison with the three other bricks at the same period is very high, and at first sight is inexplicable, as the total amount they absorbed was less than either of the others. On other grounds we might feel disposed to believe that the brick which was longest in arriving at total saturation, and then absorbed but a very small quantity, relatively, would part with its moisture with difficulty; but that does not seem to be the case except in the long run, and herein the experiments are exceedingly instructive. On being submitted to the absorption experiments, brick No. 3 took in 44 per cent. of its total quantity in ¼-hour, 56 in 1 hour, 70·6 in 2½ hours, and became fully saturated (100 per cent.) in 14 hours. In the same way, brick No. 4 absorbed 33 per cent. in ¼-hour, 36·4 in 1 hour, 50 in 2½, 75·75 in 14 hours, and arrived at totality in 38 hours.

It would appear, therefore, that the brick which is longest in arriving at full saturation, is also longest in becoming thoroughly dry, though it parts with a large proportion of its moisture (to the extent, it may be, of 50 per cent.) very much sooner than more absorbent, and more rapidly absorbent bricks.

In laying down the law embodied in the last sentence, we venture to offer the following explanation as to the circumstances which give rise to it. At the commencement of this article we showed that, "in the majority of hard bricks, however well they may be burnt, the outermost portions act as a thick skin of a less impervious character than the bulk of the interior." A brick having this hard, compact outer zone or skin, which sometimes extends to ⅛-in. or so into the interior, imbibes water very slowly by reason of the resistance offered by the compact exterior, and in any case the water does not penetrate in any appreciable quantity, beyond the hard compact zone. Most of it is to be found within a few mm. of the surface of the brick. In being dried it follows that the bulk of the moisture to be brought out being so near the surface is rapidly dealt with —hence the relatively high percentage which disappears in twenty-four hours.

On the other hand, the more absorbent bricks permit the water to percolate freely to the interior; a brick is a tolerably thick body, and some time elapses ere the drying can take effect thoroughly. From it nature, being more open, however, it is rendered perfectly dry long before the less absorbent brick, because what little moisture remains in the latter, after the first day or two, is difficult for the air to get at by reason of the closeness and compact character of the exterior.

Dealing with porosity, as distinct from absorption, it may be confidently stated that given two bricks of precisely the same kind, they will, under similar conditions, allow the same quantity of moisture to pass through. But if we place a column of water, say 6 ft. in height above one brick and only a foot of water above the other, it will be found, as would naturally be suspected, that the greater hydraulic pressure causes the brick to become the more porous. This point has been well brought out in practice in the leakage of badly-constructed brick reservoirs. In reference to buildings, even fairly good bricks may be made very porous in exposed situations by a driving rain. The subject of the porosity of brick walls, however, has never received the attention it deserves. Many nostrums have been invented to minimise the evil, and some are, no doubt, successful, but the true remedy lies in erecting the wall with as non-porous a brick as is compatible with making a secure structure, with good mortar. Even where price is the controlling factor, it cannot be too well-known that with bricks of the same price their relative powers of absorption and porosity differ within wide limits. It should not be difficult to judge of their respective qualities for building purposes after what has been said. The student can easily make absorption experiments to determine a point of this nature for himself when considering the merits of a number of bricks. We have explained in detail the manner of doing so.

HARDNESS.

The property of hardness in a brick may be utilised as a rough-and-ready means of determining its general quality. A satisfactory nomenclature showing the relative hardness of divers kinds of bricks, to be used as a standard of comparison, is yet wanting. To classify bricks according to this property would not be a difficult matter if such a standard were erected.

In the absence of a more precise method it will be useful to adapt the scale of hardness as applied to minerals. This may be briefly described as follows:—The hardness of a mineral is one of its most constant physical characters, and there are considerable differences in various minerals in regard to that property. For the purposes of classification mineralogists have assumed that there are ten degrees of hardness, and each degree is typified by some well-known mineral. The scale may thus be stated:—

1. Talc.	6. Orthoclase.
2. Gypsum.	7. Quartz.
3. Calcite.	8. Topaz.
4. Fluorspar.	9. Corundum.
5. Apatite.	10. Diamond.

Minerals of the 1st and 2nd degrees of hardness may be scratched by the finger nail; from the 2nd to the 6th by the point of a steel knife; whilst the 7th to 10th degrees are harder than steel. It is usual to employ a set of these minerals in such a manner that by successively applying them from 1 upwards we arrive at a stage when the substance being tested is scratched. Thus, if we ascertain that the piece tested scratches, but is not scratched by, orthoclase felspar, and is easily scratched by quartz, the hardness of the piece is between 6 and 7 or, say, 6·5.

The difficulty in applying this scale to bricks is much the same as in utilising it for rocks made up of a number of different minerals, but this difficulty is not a universal one. Where the bricks are largely made of quartzose sand, badly agglutinated by reason of insufficient burning, and the particles of which are held together by hardened argillaceous compounds—a very common type of brick—it is not altogether easy to determine its hardness as a whole by the method just indicated. The quartzose constituent will be of the 7th degree, and the argillaceous matter about the 5th, but it will often be found that the whole may be scratched by a crystal of calcite of the 3rd degree of hardness, by reason of the very slight coherence of the particles.

We would suggest, therefore, that the actual hardness of the minerals composing the brick should be ignored, and note taken only of the degree in which the material as a whole is scratched. Thus the brick above mentioned would be regarded as of about the 3rd degree of hardness. The student will readily perceive that, properly understood, the scale may be put to very useful purposes. Indirectly, it tells us the relative state of coherence of the particles composing a brick, and in a measure also its soundness. The hardness of a brick is frequently quoted as an index of its quality—the scale may be made to indicate that property exactly.

Further, from the manufacturing point of view, it is desirable to ascertain whether a brick has been thoroughly well burnt. Occasionally this may be found by the various tints or zonings seen when the brick is broken in halves. Very often, however, the brick is of the same tint throughout, in spite of the circumstance that agglutination of the particles becomes less and less complete from outside inwards. By employing the scale of hardness this state of things can be easily ascertained and expressed, and the brickmaker will be in a position to see how far his attempts at improvement in burning successive kilnsful have been successful, or otherwise. It is not a little remarkable that this method, so easy of application, has not been devised before, for strictly practical purposes in brick-burning.

The Manchester Society of Architects, amongst others, have felt the necessity for accurate knowledge concerning the hardness of bricks. Yet in their admirable report, referred to in our last article, the committee was not able to say more than that "hardness is not necessarily commensurate with density. The Builders' Association brick, though little removed in density from the hand-made one, is very considerably harder, whilst the most dense of other machine-made bricks appear rather wanting in toughness. It appears, indeed, to your committee, that the more the tempering and kneading manipulations of the clay are dispensed with, the less probability is there of a tough homogeneous brick being produced." From this, it is evident that the committee was not able to discriminate (any more than others who have from time to time written on the physical properties of bricks) between hardness and toughness. The student will bear in mind that the former may be regarded as the net result of the metallurgical processes called into operation on the application of intense heat, whereby the various constituents of the brick-earth have become, more or less, partially fused or agglutinated; whilst toughness is used to express the strength, or the behaviour on the application of force, of the aggregate fused, or agglutinated. The hardness of a piece of glass is about 6·5, a high figure, but that material is the very reverse of tough, not being so tough, in fact, as many substances of a hardness of 2·5. We cannot, therefore, speak of the hardness of a brick as a measure of its toughness. At the same time, it is desirable to remember that with bricks of a very soft nature the test of hardness may be employed to ascertain toughness within certain restricted limits. Thus, when the brick is easily scratched by a mineral of the 3rd degree, and the powder detached is in large grains, we may know that the brick is not so tough as one not producing the same phenomena until tested by a mineral of the 4th degree of hardness: that is, because, strictly speaking, we have not tested the mineral hardness of the brick but have merely ascertained the power of cohesion of the particles composing it—we had to employ a "tool" of a certain hardness to effect our purpose.

In dealing with vitrified bricks we are justified in assuming that the hardness of the exterior is that of the brick as a whole—at any rate, in a thoroughly well-burnt one. But we must be careful to distinguish between true vitrification of this nature and apparent vitrification imparted by the use of glazes. The mineral scale of hardness may be used to test the state of the glaze, and, indeed, may be made very useful in that respect, but that will be no index of the hardness of the brick as a whole.

The following particulars give the hardness of a few bricks as ascertained by the method we have just explained. They refer to the same pieces as were tested for absorption, &c., so that the student may compare results of all the experiments carried out, knowing that they were done on the same materials.

Hardness of Bricks, &c.

	Degree of Hardness.
Wire-cut "metalline," near Chester	9·0
Pressed "metalline" "	9·0
Heathfield, Newton Abbot, vitrified	8·5
" " white glazed	8·5
Ruabon, blue	8·5
" red facing	8·0
" terra-cotta block	7·5
Brook Hill, blue	7·5
Flintshire, white	7·0
Dunton green, white	7·0
" red	3·5
Bracknell, No. 13*	3·0
" No. 12	3·0
" No. 4	2·0
" No. 9	1·5
Kieselguhr	1·0

As with other experiments, the above-mentioned bricks were selected as giving, practically, the whole range of the properties tested for. It is difficult to imagine a softer brick than the Kieselguhr, or Bracknell No. 9, and it would be impossible to obtain one harder than those from near Chester, Ruabon, and Newton Abbot, which head the list.

Comparing these results with the absorption experiments (*ante*, p. 397), it will be noted that there is a remarkable similarity in the relative order of the two tables. The wire-cut and pressed "metalline" bricks head both lists, whilst the Kieselguhr brings up the rear. A notable exception is furnished by the Dunton Green white gault, which had to be placed near the foot of the absorption-table, but is ascertained to be much harder than other bricks which absorb less. This is a matter for future investigation, but in the meantime we may lay down the general rule that the absolute hardness of a brick, as tested by the scale adopted for minerals by mineralogists, is in a measure an indication of its relative power of absorption—the harder the brick the less moisture it absorbs.

Expansion, &c., by Heat.

Comparatively little is known concerning the behaviour of bricks when subjected to intense heat beyond the fact that, unless made of fireclay or other suitable material, they become destroyed in a very short space of time in furnaces and the like. We shall not enter into that on the present occasion, but we may note the result of an experiment on the expansion of brickwork by heat carried out on a tall chimney at Messrs. Cubitt's establishment many years since. The chimney was circular, 5 ft. in diameter to the top, and 105 ft. in height. The brickwork was 14 in. thick at the bottom and 6 in. thick at the top, the bricks having been moulded for the purpose. It stood in the centre of a small square building, and there were stone steps leading to the top, with landings at intervals, but these were quite

clear of the shaft, in no part touching it. It will be seen that by such a structure the most perfect facilities were afforded for ascertaining the effect of heat on the brickwork. An index having been set up on the topmost landing, under cover, at a height of 80 ft. from the ground, it was ascertained that that length of shaft became five-eighths of an inch longer when the fire was lighted than when it was out.

The behaviour of bricks during a conflagration is well-known. Very few natural materials can compete with the artificial in this respect. The average brick withstands heat far better than any kind of granite, syenite or other thoroughly crystalline plutonic rock; limestones frequently pulverise exteriorly and loose sandstone disintegrates into sand on the exposed faces, when subjected to a conflagration which would not have the slightest effect on bricks. Certain varieties of sandstone, and slate slabs, however, are as good as ordinary bricks (not fire-bricks), and are capable of withstanding any heat likely to be generated during the greatest fires.

GENERAL BUILDING NEWS.

NEW CHURCH, STAMFORD HILL.—The foundation-stone was laid on Whit Monday of the "Ark of the Covenant" Church, in Rookwood-road, Stamford Hill. The building, on plan, is a parallelogram, 60 ft. long by 36 ft. wide, intended to be "the same proportion as the Levitical Ark." It will have an apse at the east end, and a tower and spire at the west, which faces Rookwood-road, and forms the principal entrance to the church. The building will seat between 300 and 400 worshippers; and, underneath the eastern portion is a large class-room, with vestry and heating-chamber. The walls are to be built with brick faced externally with Bristol stone, of a soft blue tint, with dressings of Portland. The spire to be entirely of Portland stone, and to rise to a height of about 155 ft. Outside, upon the buttresses of the tower, and in the place of pinnacles at the base of the spire, as well as internally, under the principals of the roof, will be represented, in sculpture, the "Four Living Creatures" (Ezek. i. and x., and Rev. iv.); and under their feet will be sculptures representing Death, Sorrow, Crying, and Pain. There will also be expressed, in the stained glass and the sculpture, a symbolic picture of the New Creation, the lion and lamb lying down together, &c. The architecture of the church is "decorated" English, early fourteenth-century period, but in some of the internal fittings, and in the boundary fences, the later Gothic and Classic elements will be blended, "so as to express that Jesus Christ, revealed in judgment, as the Son of Man, is the Lord of the whole earth." (This seems certainly a new effort in symbolism.) Internally the church has an open timbered roof, of massive design, in one span, of hammer beam construction, with the sides arcaded from the hammer beams. There are no pillars. The fittings are intended to be of oak. The architects are Messrs. Joseph Morris & Son, of Reading; and the building works have been under the management of Mr. Richard Silver, of Maidenhead.

HULME GRAMMAR SCHOOL, OLDHAM.—On the 30th ult., Earl Spencer opened the Hulme Grammar School, at Oldham. The schools have been built to accommodate 250 boys and 150 girls on a plot of land (about eight acres in extent), bounded by Chamber-road, Frederick-street, Hulme-street, and Windsor-road. The basement floor contains a gymnasium, which will be used by both boys and girls, with dressing-rooms for each, a workshop for the boys, and a recreation-room for the girls; separate dining-rooms are provided, and drying stoves for wet clothing, fitted up with radial horses. There are staircases to the ground floor, one at each end, which, together with the corridors and gymnasium, are lined with glazed brick dados. On the ground floor are separate entrances, with offices or waiting-rooms, private rooms for use of the master and mistress, with lavatories, &c., to same. The cloak-rooms and lavatories for the boys and girls are placed near the entrances. There is a central hall, capable of seating about 600 persons, with corridors round same on three sides, from which is access to the various class-rooms, thirteen in number. All the class-rooms have raised galleries, and are lighted from the left. A space of 15 ft. superficial and a separate desk is provided for each scholar. A chemical laboratory is provided, and is fitted up with benches to accommodate thirty-six students working at a time. There is also a preparation room adjoining the laboratory, and a chemical lecture hall. The lavatories are in close proximity to the back entrances. The building is built with Ruabon bricks, with red terra-cotta dressings in tracery labels, string courses, copings, &c., with heads and sills of stone. The roofs are covered with Welsh slates and ornamental red ridges. The whole of the floors are concreted, and laid with wood blocks (except the entrances, which are tiled). All hollow floors have steel joists and girders, all the corridors from the entrances on the ground floor have tiled dados, and the large hall and class-rooms, &c., have dados in timber. The whole of the inside joiners' work is of the best selected red deal, stained and varnished. The whole of the rooms are heated by hot water, low pressure, having ornamental radiators fixed in different parts of the rooms and corridors. Ventilation is effected by fresh air inlets with Tobin's tubes, and with outlets in ceiling connected with a large exhaust ventilator on the main roof of the hall. The work has been carried out from the designs and under the superintendence of Mr. John W. Firth, architect, of Oldham.

FREE LIBRARY, REDRUTH, CORNWALL.—A free library was opened at Redruth a short time since. The library, which stands in Clinton-road, almost immediately opposite St. Andrew's Church, was built by Messrs. Symons & Son, of Blackwater, from plans prepared by Mr. James Hicks, Redruth.

TRINITY PRESBYTERIAN CHURCH, NEWCASTLE.—The foundation-stone of the new Trinity Presbyterian Church, in Northumberland-road, Newcastle, was laid on the 31st ult. The church is entered from Northumberland-road, through a porch into a vestibule, from which open two cloak-rooms. Access to the church can also be obtained from the hall entrance in the side street, also to the gallery by stairs which would be used in case of panic or after service as a means of exit. The organ chamber is recessed on one side of the choir space. The galleries are so arranged that the bulk of the seats are placed near the pulpit the remainder of the gallery being purposely kept of slight projection, and extending over side corridors on the ground floor. No columns are used in the church. The extent of the accommodation is as follows:—Ground floor, 595; gallery, 355; choir, 50. There are also halls, vestries, and ladies' rooms. A corridor separates the church from the hall. It gives access to the church and halls on the ground floor, and contains the staircases leading direct to the galleries of both buildings, as well as to the ladies' and elders' vestries. Cloak-room accommodation is also provided off the corridor near the entrance to the smaller hall, which latter has been planned to be used in connexion with the larger hall. The main entrance to the school or hall is near the low end of the side street. The infants' class-room opens direct from this hall. At this end of the building are placed the caretaker's rooms. The hall—62 ft. 6 in. by 44 ft. 6 in.—accommodates on the floor 528 and in the gallery 80, which also contains 13 class-rooms for 208 children. The church and large hall will be warmed by means of circulation of hot water in pipes on the low-pressure system. The exterior walls of the church and hall will be of Kenton and Windy Nook stone. The contract for the whole building has been let to Mr. G. H. Mauchlen, of Newcastle, who will carry out the works from the plans and under the supervision of the architects, Messrs. Marshall & Dick, their plans being selected in open competition.

CHANCEL SCREEN, CHRIST CHURCH, PLYMOUTH.—On the 2nd inst. the dedication of a new chancel screen of oak, given in memory of the late Mr. James Edgcombe, took place in Christ Church, Plymouth. The work has been executed by Messrs. Hems & Sons, of Exeter. The new screen and other additions to the church have been carried out under the direction of Messrs. Keats & Coath Adams, architects, of Plymouth.

FREE LIBRARY, CAMBORNE, CORNWALL.—A free library has recently been opened at Camborne, and has been erected by Messrs. Symons & Son, Blackwater, from the designs of Mr. Silvanus Trevail, Truro.

REREDOS, ST. MATTHEW'S, NEWCASTLE.—On the 30th ult. at St. Matthew's Church, Newcastle, a reredos, recently put into the church in memory of the late Mr. R. J. Johnson, F.S.A. F.R.I.B.A., was dedicated. The reredos, which is from the design of Messrs. Hicks & Charlewood, Newcastle, is, with its super-altar and gradine, executed in Caen stone, and stands about 11 ft. above the altar, its width being identical with the length of the same. The general surface of the new work projects slightly in front of the side panelling already in existence, the central portion being further projected. In this central portion there are a range of niches on a traceried base, and these niches are intended for figures of adoring angels. Immediately over the centre of this rises the cross with the figure of our Lord crucified; the side niches at the foot having figures of the Virgin and St. John. The two spaces over the arms of the cross have panels representing ministering angels. Above this and over the canopies is a carved cornice and open cresting, the severe line being only broken in the centre for the crowning feature, our Lord, in majesty, surmounted by a carved canopy. On each side of the central portion is a double range of niches, three tiers in height, each with its pedestal and canopy. The reredos is the gift of some of Mr. Johnson's personal friends and relatives. The figures have been carved by Mr. G. W. Milburn, of York, all the rest of the work being executed by Mr. Robert Beall, of Newcastle, from the details and under the superintendence of the architects.

CATHOLIC CHURCH AND SCHOOL, NEWPORT, MON.—The Catholic Bishop of Newport and Mentvia, Dr. Hedley, laid the foundation-stone, on the 3rd inst., of a new Catholic school and mission church at Maindee, Newport. The schools are to be built with pressed bricks, with dressings of Bath stone and Ebbw Vale buff bricks. The style of architecture will be Gothic. School and class-room accommodation will be provided at present for about 130 children, on the ground-floor, with a room for the teachers, necessary lavatories, &c. The first-floor will be used temporarily as a chapel while the preliminary steps are being taken and a church built on the adjoining piece of ground. This first-floor will be so arranged that it can be converted into a school and class-rooms when the church is finished. The contractor for the building is Mr. Dyson Parfitt, of Maindee, whose tender was about 2,000*l*. Mr. F. R. Bates, of Newport, is the architect.

SCHOOL, CORFE CASTLE.—The foundation-stone has just been laid of new schools at Corfe Castle. The new premises, which are to accommodate 170 children, will consist of a main "mixed" school-room, 60 ft. by 26 ft., a class-room 24 ft. by 20 ft., and boys' and girls' cloak-rooms on either side of the entrance. The walls are being built of Swanage stone, and the building will be roofed with red Broseley tiles, and surmounted by an oaken bell-turret. Mr. W. J. Fletcher, of Wimborne (the County Surveyor), is the architect, and the builder is Mr. W. J. Chinchen, of Bournemouth.

HOUSE, PARK-LANE, LONDON.—The freehold property at the corner of Great Stanhope-street and Park-lane, formerly belonging to Mr. John Malcolm, has recently changed hands, and the house will be rebuilt at once for the occupation of the new owner, from designs by Mr. T. H. Smith, architect.

COTTAGE HOSPITAL, LISKEARD, CORNWALL.—The Earl of Mount-Edgcumbe recently laid the foundation-stone of a cottage hospital which is being erected at Liskeard. The hospital is being erected at Tremedden, on the outskirts of the town. When completed the building will comprise an administrative block in the centre, and wings on the right and left. The east wing will contain a ward for three men, and the west wing for three women, besides an accident ward. There will be in addition two smaller wards, intended, when not otherwise used, for private patients. A special feature of the building will be the provision in the centre block of three bedrooms and sitting-rooms, which will be occupied as a home for parish nurses in the Liskeard district. The walls are being built of local stone with brick dressings, and the internal fittings will be of pitch-pine. The work is being carried out by Messrs. J. Symonds & Son, of Blackwater, from the designs of Mr. J. Hicks, architect, Redruth.

BOROUGH CLUB, NOTTINGHAM.—The Nottingham Borough Club has been erected in King-street. Several architects of the town were invited to send in competitive designs in October, 1893, and the plans of the late Mr. Geo. E. Statham were selected. Upon that gentleman's death, the directors placed the work in the hands of Mr. Gilbert S. Doughty, architect, of Nottingham, Mr. Thos. Barlow, of Nottingham, being the contractor. The building has a frontage of 50 ft. to the new street, composed of red bricks, with white Hollington stone dressings and carved bands, the roofing being of red tiles. Internally a wide staircase leads from the entrance hall, beside which on the ground floor are a smoke- and reading-room, writing-room, visitors'-room, and lavatories. Public and private dining-rooms are placed on the first floor, with card-room, the manager's office, and the domestic offices. On the second floor are the billiard-room, a private card-room, and the corridor with lavatories, bath-rooms, &c., and to the rear on this floor also are the kitchen, the scullery, the stillroom, and other departments of supply. The top floor is reserved entirely for the housing of the management and staff of the building. The floors of the hall, corridors, &c., are of marble mosaic, and glazed tiles line some of the apartments. Generally, the interior decorations are of Indian red, buff, or brown. The building is lighted by electricity. Mr. Joseph Blackburn, of Nottingham, installed the electric light, and Mr. Charles Taylor was the decorator.

FREE LIBRARY, TRURO.—The foundation-stone was recently laid of a free library at Truro. The building will measure about 53 ft. by 45 ft. externally. Internally, the ground-floor will contain a ladies' room, a boys' reading-room, a general reading and periodical room. On the first floor there will be a lending library room, 41 ft. 6 in. by 20 ft., with counter and borrowers' lobby, a reference library, with a bay-window, and a librarian's or committee-room. Above this, on the second floor, will be attics for the storage of papers, books, &c. The designs have been prepared by the Mayor of Truro, Mr. Silvanus Trevail, architect.

SANITARY AND ENGINEERING NEWS.

MACCLESFIELD SEWERAGE.—The Local Government Board have now given their sanction to an application made by the Macclesfield Corporation to borrow 60,000*l* for works of sewerage and sewage disposal. The scheme includes an outfall sewer to convey the sewage to a site three miles below the town, and precipitation works and an irrigation area of fifty-nine acres. The object of the scheme is to purify the river Bollin, which is now polluted by manufacturers' refuse. The engineer to the scheme is Mr. W. H. Radford, C.E., of Nottingham.

SEWAGE DISPOSAL, RAUNDS (NORTH HANTS.)—At a recent meeting of the Raunds Parish Council it was unanimously agreed to adopt the "Universal" Company's system (the "Ives" patents) for the

disposal of the sewage of the district. Mr. E. Sharman, C.E., of Wellingborough, was instructed to prepare the necessary plans to place before the Local Government Board. The total scheme will cost about 4,500*l.*

SEWAGE DISPOSAL, STAFFORD.—On the 31st ult. Colonel W. M. Ducat, R.E., Local Government Board Inspector, held an inquiry at the Guildhall, Stafford, relative to the application of the Town Council for sanction to borrow money for purposes of sewerage and sewage disposal. The plans and scheme have been prepared by the Borough Surveyor (Mr. Blackshaw), in consultation with Mr. Willcox and Mr. Bagnall, the Chairman of the Sewerage Committee. At the request of the inspector, Mr. Willcox proceeded to explain the scheme and the method of treatment of the sewage. He stated that the total area of the farm was 138 acres 36 perches, of which it was proposed to prepare at once 40 acres for downward filtration purposes. He stated that the land was admirably adapted for sewage treatment, being a light, loamy soil, and sand and gravel subsoil. The whole area would be under-drained at a depth of 6 ft. The method of disposal proposed to be adopted was chemical precipitation in tanks, followed by downward intermittent filtration. The sewage would be lifted from the depôt to the precipitating tanks, which would be four in number, having a capacity of about 350,000 gallons. These tanks would be so arranged that they could be worked on the quiescent or continuous process, and would be built above ground for convenience in gravitating the sludge to the sludge-beds, where it would be air-dried and incorporated with the soil. The nearest house to the sewage tanks was about 500 yards away, so that no nuisance was likely to be experienced. Mr. Wilcox then gave the inspector particulars of the pumping machinery and other works at the depôt. The Town Clerk mentioned that Dr. Blumer, the Medical Officer of Health, had inspected the site, and cordially approved of it. The inquiry then concluded, and the inspector afterwards inspected the site in question.

THE GLASGOW WATER SUPPLY.—We are informed that at a recent meeting of the Water Committee the engineer reported that the quantity of water at present drawn into the city exceeded that at the corresponding period of last year by nearly four millions of gallons per day. This great increase in the consumption by the city, coupled with the short amount of rainfall there has been since January 1, has induced considerable anxiety as to the future maintenance of the supply to the city during the summer. The citizens should take note of this, and exercise the strictest economy in their power in the use of the water, or otherwise there may be something approaching to a water famine if the summer continues to be a dry one. The engineer thinks that there must be a large number of lead pipes supplying houses which burst during the late intense frost, and which have not yet been discovered. It would probably lead to the detection of these if house proprietors would instruct their plumbers to make a thorough examination of the lead service-pipes connected with their properties.—*Glasgow Herald.*

DRAINAGE WORKS, UFFCULME, DEVONSHIRE.—Major-General Crozier, R.E., held a Local Government Board inquiry a few days since respecting an application by Tiverton Rural District Council for permission to borrow 1,500*l.* for a scheme to divert the sewage of Uffculme from the River Culm. Mr. Liddalls, the engineer of the scheme, explained that the town is drained by means of brick and stone sewers, which also received the storm and surface water. The new sewer would be 9 in. and 6 in. in diameter, of best quality stoneware cement-jointed pipes. Ample means of flushing and ventilation would be provided. The sewage would be used on three fields, containing about 20 acres, on the broad irrigation system, during the eight months irrigation operations are carried on, and during the remainder of the year it would be dealt with by chemical precipitation and filtration on the international plan. Mr. Smith, Weston-super-Mare, who represented Rev. S. Bennett, owner of Grantlands, said the sewage would be deposited within 300 yards of Mr. Bennett's residence, which he had considerably improved, and if brought so near his house he should have to leave as he had a delicate wife. The inspector said as to whether these schemes were a success or not or a nuisance or not depended on how they were worked, but the drainage of a town could not be stopped because a gentleman had got a nice shrubbery. Mr. Heard and Mr. Wright, members of the Uffculme Parish Council, contended the scheme was not necessary. The inspector reminded them that these streams were used for drinking purposes both by cattle and human beings.

PROMENADE PIER, TORQUAY.—A new pier has just been constructed at Torquay. Entrance to the pier will be obtained from the Torbay-road and from the Princess Gardens. At the Torbay-road entrance will be two octagon toll-boxes, fitted with double sets of turnstiles and entrance-gates. Close to the entrance will be waiting and cloak rooms, 27 ft. long by 12 ft. wide, with lavatories for ladies and gentlemen; and inside the pier railings is a large open space, upon which, at some future time, may be erected a pavilion or other structure. From the Princess Parade the pier is approached by a curved incline deck, over a corner of the harbour, 30 ft. wide. The pier is 930 ft. long, with a widened head 136 ft. in length. There is continuous seating the whole length of the pier, capable of accommodating quite 1,000 persons. On the widened head is a band-stand for twenty-five performers, and half-a-dozen shelters. There is a landing-stage at the pier head. The stage is 110 ft. long and 10 ft. wide. There are three levels to the landing-stage—one for high water, another for low water, and the third for the intermediate state of the tide. Off the pier head the water is deep enough for passenger steamers visiting Torquay at all tides. The construction of the pier has been carried out by Mr. A. Thorne, of Westminster; and Mr. H. A. Garrett, A.M.Inst.C.E., designed the pier, and has personally superintended its construction.

STAINED GLASS AND DECORATION.

WINDOW, ROSSLYN CHAPEL, EDINBURGH.—Two stained-glass windows have just been added to Rosslyn Chapel. In 1887 the late Earl of Rosslyn filled in the centre of the clearstory windows on the north side with a figure of St. George and the Dragon, in memory of the late Mr. Andrew Kerr, architect, who superintended the building of the baptistry, and other work connected with the Castle. At the same time the centre window on the south side was filled in with a representation of St. Michael. It was understood at the time that these two subjects formed part of a series with which Lord Rosslyn intended to fill all the clearstory windows, after the suggestion and design of Messrs. Clayton & Bell, of London; those on the north side consisting of Christian warriors, and those on the south of Old Testament warriors. There have now been added on the left of the centre subject, St. Longinus, soldier and martyr in Cappadocia, fourth century; and on the right St. Maurice, soldier of the Theban Legion, who was martyred with others in 286.

MEMORIAL WINDOW AT ST. SIDWELL'S CHURCH, EXETER.—On the 1st inst. the new three-light south-west window was dedicated at St. Sidwell's Church, Exeter. The window is by Messrs. Percy Bacon & Brothers, of London. In the tracery lights that occupy the upper part of the windows are the forms of angels bearing scrolls. The central and most prominent figure is St. Boniface. On the dexter side-light is a figure of St. Hieretha, a native of Swymbridge, in north Devon. She is represented bearing in her hands an exact model of the western tower of Chittlehampton Church, of which edifice she was the foundress. On the sinister side is St. Sidwell. Above each figure is canopy work, and over this, on either flank, are full-length figures of angels, the one on the south bearing a starry crown, and that on the north a martyr's palm. Immediately under the central figure are the arms of the See, impaled with those of Bishop Bickersteth. The new stonework for the windows was carried out by Messrs. Harry Hems & Sons.

FOREIGN AND COLONIAL.

FRANCE.—The committee for considering the models for the monument to be erected on the Place d'Annecy to the memory of President Carnot has selected the design of M. Raymard Guimberteau.——M. Haussoullier, a painter connected with the Ecole Pratique des Hautes Etudes, and M. Pontremoli, architect, and former holder of the Prix de Rome, have left for Asia Minor on a mission from the Department of Fine Arts, to carry out excavations at Hieronda (Didyme) on the site of the Temple of Apollo.——The Chamber of Deputies is considering a proposal to raise a national monument to the memory of the soldiers who fell in the war of 1870.——The Académie des Beaux-Arts has awarded medals to the following architects:—To M. Debrasse and M. Lechat, for their publication on Epidaurus; to M. Clausse, author of a work on "Christian Basilicas and Mosaics," and to M. Faure for his Theories of Proportion in Architecture.——Several deputies of Paris are interesting themselves in a scheme for the entire suppression of the fortifications of Paris.——In a few days the decree will be formally published which suppresses the "Direction des Bâtiments Civils," which will be placed under the authority of the Directeur Général des Beaux-Arts, under the Department of Public Instruction.——It is proposed to construct on the site of the Eden Theatre a large square, to be called "Square de l'Opera."——It is proposed to construct, at Marseilles, an Asylum for "Invalides du Travail," at an estimated cost of 750,000 francs.——The death is announced, at the age of 79, of the sculptor Etienne Montagny, born at St. Etienne. He had obtained medals in various years since 1849, and also the cross of the Legion of Honour.

GERMANY.—The Saxon and Thuringian Industrial Exhibition will be held at Leipsic in 1897. A competition has already been opened for a design for the exhibition hall. Several premiums will be given; the first premium being 325*l.*——Hanover is to have a new museum and a new town-hall.——A new technical college is being erected at Darmstadt from the designs of Professors Wagner and Marx.

MISCELLANEOUS.

MEMORIAL THRONE, NORWICH CATHEDRAL.—On the 24th ult. the Prince of Wales unveiled the Pelham memorial throne in Norwich Cathedral. In a niche on the western side will be placed a figure of the late Bishop Pelham, and in a corresponding recess on the eastern side an effigy representing the first Bishop of Norwich On the north face of the back panel is a shield bearing the arms of Bishop Pelham, impaling those of the See of Norwich, surmounted by a fourteenth-century mitre, and enriched by a band on which are carved the words, "In memory of John Thomas Pelham, 1857-93." The throne was designed by Mr. J. L. Pearson, R.A., and with the exception of the sculptured figures, which are from the chisel of Mr. N. Hitch, of London, the whole of the work has been done by Mr. C. Simpson and Mr. G. Clarke, two of the assistants of Messrs. Cornish & Gaymer, of North Walsham, Norfolk. The armorial bearings were executed by Mr. J. Minns, of Norwich.

IRON SAND.—A peculiar industry in connexion with the granite trade is the manufacture of iron sand. This curious and interesting process as carried on at the Pioneer Ironworks, Aberdeen, is as follows:—Into an opening at the top of a firebrick cupola, with an outer casing of iron, are thrown from an elevated stage coke and bits of old cast-iron —railway wagon-wheels, cannon-balls, agricultural implements, &c. A fierce heat is kept up in the cupola by means of fans driven by a steam-engine. The metal when melted finds its way out at the foot of the cupola down a spout, and a powerful steam blast sends it flying in white-hot spherical globules into a brick chamber containing a tank with cold water. On taking off the little door at the observation hole, and peeping cautiously in so as to avoid a hot particle invading the eye, one can see the spherules dropping in a shower on the water, causing a host of tiny explosions. Such is the strength of the blast that the sparks fly out now and then at the chinks of the iron doors at the other end of the brick chamber, and strike the wall 50 ft. at least from the cupola. Among old iron railway chairs are preferred. The writer of this paragraph on his visit saw an old cannon, 12 ft. long, lying on the ground ready to be broken up and cast into the smelting-pot. The melting operations over the water is run off the tank. The spherules are then collected and spread on sloping iron platforms to dry for a day or so. There are seven steam-pipes at intervals to aid in the drying part of the process. The material is then riddled by wire sieves moved by steam-power, and falling down a spout is collected and put up in 1-cwt. bags for sale, or stored in the sheds in loose heaps. This portion of the premises is ventilated by a louvre ventilator and an iron funnel. It is in the riddling that the superiority of the Aberdeen plan over the system prevailing in the United States comes in. At the Pioneer Iron Works seven different sizes are produced, the present retail price of the finest being 6*l.* a ton in Aberdeen. The sizes vary from a very fine powder to No. 1, which about equals No. 6 shot. Iron sand is, in fact, generally called chilled shot by granite workers in Aberdeen. Of the intermediate sizes No. 4 resembles clover seed in dimensions, and No. 3 would about equal the pellets known among sportsmen as sparrow-hail. Iron sand is used for sawing and polishing granite. For ordinary steam saws (which are made of mild steel) the largest variety is employed. These saws when in motion are fed with the iron sand and with water. The water washes out the iron sand, which is caught in a box and utilised over and over again until used up. For nice sawing, when the granite is cut perhaps an eighth of an inch thick, to be polished on both sides for fancy caskets, samples, &c., the roughest kind is not used. The three finest grades are used in the first stage of machine-polishing. When iron sand is used the stones do not require to be dressed so finely before being machine-polished as they did when sea sand was used. The employment of iron sand enables machine-polishing to be executed about three times as fast as when sea sand was used, and about ten times less of it is necessary. Emery or sea sand is, however, used for hand-polishing in all stages, and emery is also employed in the second stage of machine-polishing.

KNIGHT'S LOCK CLIP FOR SLATES.—This invention, patented by Mr. F. Knight, consists of a clip composed of a dovetailed base surmounted by a hook, and the whole is made of a composition of lead and antimony. The base fits into dovetailed slots cut purposely on either side of the slate by a double-action register slotting-machine, designed for the purpose, and also patented by the inventor. When the slates are brought together along the course, the clip becomes dovetailed between the two adjoining slates, leaving the upper part or hook to receive the overlapping slate of the course above, so that when this is fixed, each slate becomes locked to its neighbour on each side and at the base, besides being secured at the head in the usual manner. The invention, in so far as it leads to the greater security of the slates, is a good one, and is especially of value in any exposed position. It has advantages, again, in the repairing of slate-roofs, as, by a slightly modified treatment of the same clip, shown by the inventor, slates, when broken by

chimney-pots, &c., can be inserted with ease on a roof to which this system is applied, and held in position by three of the sides being connected to the adjoining slates. The present patent is simple and easy of application, and should be favoured by those who desire good construction and durable properties in a roof.

PARTNERSHIP.—Mr. Mark H. Judge has taken into partnership Mr. H. G. Gardner, who has been his principal assistant for some years.

SPIKING WOOD FENCES.—The form of nail shown in the annexed cut, called a "spur nail," is made by the Durrans' Patent Syndicate, for the purpose of spiking the tops of wooden fences to prevent people climbing over them. It is driven by a hammer at the point A, the short end entering the wood, the long one protruding. It seems very effective for its purpose, is easily driven, and difficult to extract, as there is no head to lay hold off.

SOCIETY OF ENGINEERS.—The Council of this Society announce that they have made arrangements for the future to hold the ordinary meetings in the lecture-theatre of the United Service Institution.

"EXPANDED METAL" LATHING.—The property in the manufacture of this useful material has passed, we are informed, from the "British Metal Expansion Co." into that of the "Expanded Metal Co.," who have opened a show-room in Upper Thames-street. The new company promise, by aid of improved machinery, to be able to make the larger mesh work much stronger than heretofore, as they will be able to cut any thickness of steel up to ¼ in.

THE BUILDING LINE QUESTION AT MIDDLESBROUGH.—On the 31st ult. the question of allowing buildings to be brought out beyond the front main wall of the house or building on either side thereof was again discussed at a meeting of the Middlesbrough Streets Committee. At a former meeting plans of temporary shops with a mission-room above on land adjoining the Linthorpe-road Baptist Chapel were submitted, but were rejected as encroaching 18 in. on the street. The Surveyor (Mr. F. Baker) said the plans proposed to make the front main wall of the shops in a line with the bay-window projection of the houses on the south side. Councillor L. Watson remarked that when a permanent building was put up, probably in four or five years, it would be set back to the main wall of the chapel. The Chairman said the Committee could not afford to risk any encroachment on the street, and if they passed plans for the foundations of these shops being brought out 18 in. the Corporation would be out of court if a mission-room was built on the top of them and brought out to the same line.

NEWCASTLE SOCIETY OF ANTIQUARIES.—The first country meeting of the season in connexion with this Society took place on the 3rd inst., when a company numbering about forty or fifty visited Bishop Auckland. Three brakes were provided, and on arrival at Auckland Station the company proceeded to the Saxon Church at Escomb, thence to St. Helen's, where the buildings of interest were inspected, and afterwards to South Church, the largest parish church in the county. The Deanery at South Church was also inspected. The Rev. J. F. Hodgson, of Witton, acted as *cicerone*, whilst the Rev. T. E. Lord also assisted in the description of the Escomb Church. The Auckland Castle was also visited.

A NEW PARK FOR ILFRACOMBE.—The Hillsborough Estate has been purchased by the Ilfracombe District Council for 7,500*l.*, and it is to be laid out as a public park. The estate comprises 100 acres, and includes the sea fronts of Swallows' Hole Beach, Broad Strand Beach, Beacon Point, Blythe's Cove; also two meadows to the east of Larkstone. Thus the whole of the coast from Rapparee Cove to Hele Bay will belong to the town, which will now possess a free bathing-place and a capital stretch of sands.

PUBLIC IMPROVEMENTS AT RHYL.—The inauguration of the completion of the marine lake, which covers forty acres, and has been constructed at a cost of 10,000*l.*, and the sewerage works, reconstructed by Mr. Baldwin Latham, C.E., at a cost of 30,000*l.*, took place at Rhyl on the 3rd inst.

NEW RECREATION GROUND FOR MAIDSTONE.—A new recreation ground at Maidstone was recently opened by Lord Harris. The site, which covers nearly 20 acres, was the gift of Mr. Balston, of Maidstone (the late High Sheriff for Kent), and its conversion into a recreation ground has cost nearly 10,000*l.*

NEW PUBLIC GARDEN AT WOOLWICH.—The Duchess of Fife opened on the 31st ult. the churchyard of St. Mary's, Woolwich, as a public garden.

ROYAL ACADEMY STUDENTS' CLUB.—On Wednesday the R.A. students held the first performance of their annual play at St. George's Hall, when a crowded audience, including many notabilities in the art world, assembled. The title of the play was "Pallettaria," and the main point in it consisted in the arrival of two foreigners in the country of Pallettaria, who undertook to teach the natives the true principles of art. The play was well acted, the topical songs of Mr. Walter Churcher were much appreciated, as also various little hits at the ultra-modern school of painting; *e.g.*, "drawing is a luxury and not a necessity." Among the other actors were Mr. Harold Speed as the King of Pallettaria and Miss Coates and Miss Colyer as his sisters. The programme was specially designed by Mr. J. W. Waterhouse. The proceeds of the Tuesday and Thursday performances went to London charities in aid of distressed artists, and the final performance to-day is for the benefit of the Royal Academy Students' Club.

CAPITAL AND LABOUR.

THE LONDON BUILDING TRADE CRISIS.—The position of affairs in the London building trade remains unchanged. In consequence of the men declining arbitration, the rules came to an end on the 1st inst. We believe it is intended by the masters to continue on the old lines, insisting upon the understanding that no difference shall be made between unionists and non-unionists, and that sub-letting shall be done where required.

LEEDS JOINERS' DISPUTE.—The joiners' strike in Leeds is now at an end. The settlement was arrived at on the 31st ult., at the third conference, held at the Royal Exchange, between the masters' and men's representatives. The men originally asked for an advance of wages from 8d. to 9d. an hour. The masters expressed their willingness to give them 8½d., but this concession the men refused to accept. They reduced their claim, however, to 8½d. By the agreement which all the members of the conference signed, the masters consent to pay the 8½d. per hour asked for. In regard to the reduction of working hours in winter which the men desired, concessions have been made on both sides. For twelve weeks, commencing the first Saturday in November, the men will be required to work forty-one-and-a-half hours per week instead of fifty hours, and for the following four weeks forty-four hours. The summer hours are practically the same. As to the half-dozen imported men who have been working during the strike, the masters agree to find them employment in some other town.

THE STRIKE IN THE LEICESTER BUILDING TRADE.—The employers and operatives in the carpenters' branch of the Leicester building trade have signed an application to the Board of Trade to appoint an arbitrator to consider and settle the now long-protracted strike. The Board of Trade have acceded to the request that they should appoint a mediator. The principal issues are the refusal of the employers to abolish piecework, and abandon their right to employ non-unionists as well as unionists.

MEETINGS.

SATURDAY, JUNE 8.

St. Paul's Ecclesiological Society.—Visit to the church of Willingale Spain, near Ongar, under the direction of the Rev. C. Lennard Payne. Train leaves Fenchurch-street at 2.13 p.m.

Liverpool Engineering Society.—Excursion to the Liverpool Corporation Reservoirs and Filter Beds at Rivington.

MONDAY, JUNE 10.

Royal Institute of British Architects.—Fifteenth general meeting (business) to receive the report of the scrutineers appointed by the annual general meeting to direct the election of the Council, Standing Committees, &c., for the year of office 1895-96. 8 p.m.

Society of Engineers (Royal United Service Institution, Whitehall).—Mr. H. W. Umney on "Safety Appliances for Elevators." 7.30 p.m.

Clerks of Works' Association Carpenters' Hall).—Paper by Mr. J. Muir. 7.30 p.m.

WEDNESDAY, JUNE 12.

Society of Engineers.—Visit to the Waterloo and City Railway Works (in progress), Upper Ground-street, Blackfriars-road, and the New City of London Brewery, Upper Thames-street.

THURSDAY, JUNE 13.

Society of Antiquaries.—Ballot for the election of Fellows. 8.30 p.m.

Society for the Encouragement of the Fine Arts.—Mr. J. W. Tonks on "Mayoral Chains and Civic Insignia." 8 p.m.

FRIDAY, JUNE 14.

Architectural Association.—Annual Dinner, Holborn Restaurant. 7 p.m.

SATURDAY, JUNE 15.

Architectural Association.—First Summer Visit to Bickley Park, Kent, to several works by Mr. Ernest Newton (see advt.).

Northern Architectural Association.—Visit to Tennis Court, &c., Jesmond Dene House.

Association of Municipal and County Engineers.—Lancashire and Cheshire and Northern Districts Meeting at Thirlmere, &c.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

6,391.—WINDOWS: *C. Monday.*—Deals with improvements in sash windows, which consist in making the top and bottom rails of the enclosing frame of light angle-iron, joined to the vertical sides or stiles, which are in two parts and vertically connected by a watertight joint. The sashes are hung in the usual way, and may be adjusted for opening into the room.

11,184.—DOOR BOLTS: *J. Cartland.*—Improved door bolt for indicating simultaneously on the outside when the door is bolted from the interior. A bar similar to an ordinary bolt is provided with an arm which travels in a slot formed in the door, and by means of a cam raises or lowers a vertically sliding plate, which is marked with suitable letters and forms the indicator.

12,153.—WINDOWS: *G. Whieldon.*—Relates to means of securing window-sashes, and is used in connexion with the ordinary sash-fastener. Two pieces of metal are hinged together, one of which is adapted to be screwed to the top edge of the lower sash, the other being left free to move up or down. This arrangement is fixed near the ordinary fastener, the catch of which is held in a locked position by folding down the hinged flap. In windows that are seldom opened the loose flap may be screwed down for permanent security.

12,215.—TRAPS: *E. Gold.*—This invention relates to dynamic traps or drainage valves, for draining off condensed steam from pipes or vessels. The valve is constructed to open inwardly, so that it is held to its seat by internal pressure, but when the pressure ceases it opens automatically, and allows the water to drain out. It consists of a shell having a discharge opening through it, with a valve seat on its inner side. The valve is constructed with a stem which passes through the central opening, and is connected with a baffle disc on the opposite side, which serves as a stop when the valve is open.

12,457.—BOLT-SOCKET: *B. Heymanson.*—Provides a door-bolt socket for fastening to the floor, which will not become filled with dirt when the bolt is not in use. For this purpose a plate is fitted in the socket and raised up flush with the top when the bolt is withdrawn.

24,056.—FLOORS: *J. Barnet.*—A system for constructing a hall-floor so as to be easily adjustable in a horizontal or inclined position. The floor is of ordinary construction, and balanced upon its supports by a V-shaped projection, which fits into a corresponding opening. By means of a series of screws or cams carried on shafts the floor is raised at one end and fixed in a sloping position.

5,025.—BAKERS' OVENS: *C. Seidel.*—Relates to a baker's oven having upper and lower firing, wherein the fire gases, after impinging on the baking space, as in those of ordinary construction, are again led below the baking space by suitable passages, in order to pass subsequently into the chimney, or through flues for heating a second baking-room.

NEW APPLICATIONS FOR LETTERS PATENT.

MAY 20.—9,904, J. Carroll and J. McDonnell, Ridge Tiles.—9,924, D. More and A. Lear, Corrugated Lead Waterpipe.—9,929, J. Blackham, Painter's Safety Belt.—9,960, K. Schelzel, Roofing Tile.

MAY 21.—9,971, T. Boon, Solid Brickmaking Machine.—9,991.—M. Pabor, Flooring or Sliding-board.—10,025, H. Thornton, Securing or Dowelling the Join, &c., of Wood Block Flooring, Mouldings, Handrails, &c.—10,047, J. Arnold, Drill Tap.—10,061, J. Shrawder, Pneumatic Door-checks and Closers.

MAY 22.—10,089, J. Patchett, Precipitation Process or Mortar Analysis.—10,090, J. Patchett, Measure Process of Mortar Analysis.—10,106, A. Sennett, Fire Grates and Stoves.—10,110, C. Marson, Slabs for Covering Ceilings and Partitions.—10,138, E. Preston, Waste Preventer Flushing Cisterns.—10,142, J. Armstrong, Electric Gas-lighting Devices.

MAY 23.—10,190, G. Waterfall, Metallic Sockets for Picks.—10,207, L. Bird and J. Wright, Cement Concretes.—10,217, J. Fenton and J. Thornley, Draught Excluders for Doors, Windows, &c.—10,237, J. Murphy and others, Brackets for Ladders.

MAY 24.—10,255, W. Keyton, Stove or Firegrate.—10,260, J. Conlong, Door Latches.—10,268, F. Richmond, Jointing Lead-pipe to Iron-pipe.—10,287, W. Kershaw, Water-pipes to Prevent Freezing of Water therein.

PROVISIONAL SPECIFICATIONS ACCEPTED.

5,376, J. and H. White, Wood Block Flooring and Pavements.—7,690, D. Richmond, Syphons for Water-closet and other Cisterns.—7,757, F. Ownsworth, Tying Cavity Walls.—8,216, B. Vandeesteen, Water Meter.—8,224, R. Vaux, Chimney Cowls, &c.—8,263, E. Bond, Set Squares, &c.—8,324, W. Youlten, Sash Centres.—8,681, W. Buck, Weather Tiling and Tiles Therefor, and for Roofs and Ridges.—9,283, W. Metcalfe and F. Wrightson, Artificial Stone.

COMPLETE SPECIFICATIONS ACCEPTED.

(*Open to Opposition for Two Months.*)

12,034, E. Reiss, Walls and Partitions of Buildings.—12,837, H. Holmes, Fixing Sash Windows.—13,782, S. Jennings and J. Mosley, Water-closets and in Apparatus for Flushing Same.—14,465, J. and J. Hampton, Bench Cramps.—1,809, P. Newton, Flue or Furnace Bricks and in Flues, Smoke Conduits, &c.—7,257, T. Tucker, Draught Excluders for Doors.—7,459, G. Balsley, Building Bricks.—7,655, L. Flatau, Metallic Roofing.—8,067, J. Torrens, Mallets.—8,154, S. Gamble, Ventilating Sash-fastener.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

MAY 23.—By *Daniel Watney & Sons:* "Grasslands," Cuckfield, Sussex, residence and 76 acres, f., 1,940*l.*; "Ivy Cottage," and 2a. or. 12p., f., 155*l.*; "Washland Farm," and 19a. or. 12p., f., 320*l.*—By *Newbon & Co.:* 6, Canonbury-grove, Canonbury, u.t. 23½ yrs., g.r. 8*l.*, r. 35*l.*, 300*l.*; 19, Furlong-rd., Holloway, u.t. 41 yrs., g.r. 7*l.*, r. 42*l.*, 295*l.*; Stabling premises, Arleston-rd., u.t. 41 and 39 yrs., g.r. 5*l.*, 165*l.*; 336, Liverpool-rd., u.t. 39 yrs., g.r. 8*l.*, r. 42*l.* 310*l.*; i.g.r. of 32*l.* 10s., Harvist-rd., u.t. 48 yrs., g.r. 2*l.* 10s., 590*l.*; i.g.r. of 26*l.*, Harvist-rd., u.t. 48 yrs., g.r. 2*l.*, 485*l.*; i.g.r. of 53*l.*, Bemerton-st., King's Cross, u.t. 46 yrs., g.r. 18*l.*, 620*l.*; f.g.r. of 29*l.* 8s., Marlborough-rd., Holloway, reversion in 72½ yrs., 920*l.*; f.g.r. of 22*l.* 15s., Hatchard-rd., reversion in 72½ yrs., 700*l.*; f.g.r. of 42*l.*, Holloway-rd., reversion in 73½ yrs., 1,230*l.*; plot of land with workshop, Marlborough-rd., f., r. 25*l.*, 680*l.*; 420 and 422, Caledonian-rd., f., r. 96*l.*, 1,910*l.*; two plots of land, Halifax-rd., Enfield, f.; 1 to 6, Young's-bldgs., St. Luke's, f., r. 110*l.*, 630*l.*; 347 to 361 odd, Old Ford-rd., Old Ford, and range of cow-sheds adjoining, f., r. 274*l.* 14s., 2,410*l.*; f.g.r. of 15*l.*, Park-grove-rd., Leytonstone, reversion in 89 yrs., 380*l.*—By *Bliss & Sons:* f.g.r. of 31*l.* 10s., Lawrence-rd., Edmonton, reversion in 93 yrs., 595*l.*; f.g.r. of 121*l.* 5s. 6d., Folkestone-rd., reversion in 93 yrs., 2,445*l.*; f.g.r. of 5*l.*, Folkestone-rd., rever-sion in 96 yrs., 110*l.*; 105, 107, and 109, Brettenham-rd East, f., 355*l.*; "Myddleton House," High-st., Hornsey, f., sold privately; 46 to 52 even, Parmiter-st., Hackney, u.t. 40 yrs., g.r. 19*l.*, r. 112*l.*, 870*l.*; 1 to 4, Bohn-st. Mile End, u.t. 59 yrs., g.r. 10*l.*, 460*l.*—By *Messrs. Crawter:* Plot of land, Church Cobham, Cobham, Surrey, f., r. 1*l.*, 120*l.*; "Old Long Boyds," dairy premises, f., r. 15*l.*, 305*l.*; "Fox and Hounds" beer-house, plot of land, shop, and house, f., 2,135*l.*; five plots of building land, f., 1,100*l.*; two houses, f., r. 30*l.*, 500*l.*—By *Worsfold & Hayward:* 3, 4, 10, and 10A, Ladywell-pl., &c., Dover, Kent, f., 1,195*l.*; 1, Palmerston Cottages, f., 270*l.*; f.g.r. of 10*l.*, London-rd., Buckland, Kent, 225*l.*; "Endeavour" Inn, public-house, London-rd., f., r. 45*l.*, 1,200*l.*; 131, 133, 134, and 135, London-rd., f., 885*l.*; 1 to 5, Endeavour-pl., f., 560*l.*; freehold cottage, Abbey-rd., 80*l.*—By *J. J. Wheeler* (at Town Hall, Chelsea); 16, West-

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Dual Schools, &c.	Pembroke Dock Intermediate School	10*l.* 10s.	July 15

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Drill Hall, Bridlington Quay	G. Wortley	J. Earnshaw	June 11
School, Greenhill	Harrow United Dist. Sch. Bd.	Houston & Houston	do.
Store Building, West Bowling, Bradford	Co-op. Soc.	W. H. Whitehead	do.
Extension of Wall, Embankment, and Roadway, near Lyng	Somerset Drainage Commrs.	F. Lowry	do.
Four Houses, Clutton-street, Soothill, Batley, Yorks	.....	W. Crawshaw	do.
Stable, Coachhouse, &c. Coll Hotel, Wibsey, Yorks	.....	W. H. D. Horsfall	do.
School, Brynamman, Wales	Llanguicke Sch. Bd.	*Official*	do.
Sixty Artisans' Dwellings	Longford (Ireland) T.C.	do.	do.
Sewer, Stormer-hill, Tottington	Bury (Lancs) R.D.C.	do.	do.
*Five Dwelling Houses, Watch House, &c.	.....	do.	do.
&c. Calshot Castle	Admiralty		
Water Mains, &c.	Malpas (Cheshire) R.D.C.	W. Webb	June 12
Pipe Sewer (300 yards)	Clutton R.D.C.	W. F. Bird	do.
Additions to Methodist Church, Dudley-hill, Bradford	Committee	Rycroft & Mills	do.
Two Houses, Summer-lane, Barnaley	.....	Wade & Turner	do.
Additions to Farmhouse, Aldahuie, Aberdeen	.....	D. & J. R. M'Millan	do.
Alterations to Corn Exchange, Hadleigh, Suffolk	.....	Eade & Johns	do.
*Granite Kerb	Mile End Old Town Vestry	J. M. Knight	do.
Additions to Dispensary and Infirmary, Penzance	.....	O. Caldwell	June 13
Five Houses, Walls, &c. Old Mill-lane, Barnsley	.....	Senior & Clegg	do.
Additions to Workhouse	Corwen Union	J. Williams & Son	do.
Twenty-five Cottages	Midleton (Ireland) T.C.	R. Walker	do.
Additions to Schools, near Henley-on-Thames	Nettlebed Sch. Bd.	S. C. Johns	do.
Road Metal, Broughton, Chester	Hawarden R.D.C.	W. Newton	do.
Granite Kerbing, &c. (500 yards)	Grays (Essex) U.D.C.	A. C. James	do.
*Paviors' Work	Coms. of H.M. Works	*Official*	do.
*Painting Works	Fulham Union	do.	do.
Residence at Schools, Heathrow	Harmondsworth Sch. Bd.	do.	do.
Lecture Hall, &c. Ballymoney, Ireland	Com. of the Second Presbyterian Church	A. Todd	June 14
Pier, Dwarwick Head, near Dunnet (N.B.)	Caithness C C.	J. Barron	do.
Hospital	New Hunstanton U.D.C.	J. C. Walker	do.
Two Cottages, Sherburn House, Co. Durham	Governors of Sherburn Hospital	H. Henry	do.
Labourers' Cottages	Celbridge (Ireland) Un.	S. Manning	do.
Fifteen Houses, Llewellyn-street, Cwmpare, near Treorky, Glam.	.....	W. D. Morgan	do.
Alterations to Club and Institute, Dewsbury	.....	Holtom & Fox	do
Widening Bridge, Girnock, Aboyne, N.B.	.....	John Milne	June 15
Additions to Carmel Chapel, Penrhiwceiber, Wales	.....	A. O. Evans	do.
Flags, Setts, Kerbs, &c.	Wakefield Corp.	R. Porter	do.
Road Works, Leeds-road	do.	do.	do.
Schools, &c. Oldland Common	Bitton School Board	W. L. Bernard	do.
Alterations to Eighteen Shops, Market-terrace, Stafford-street	Longton (Staffs) T. C.	J. W. Wardle	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
House, Windermere	H. Andrews	R. Walker	June
Road Metal (1,000 tons)	Felixstowe and Walton U.D.C.	G. S. Horton	do.
Road Works, Station-road	Keswick U.D.C.	W. Hodgson	do.
Additions, &c. to College Building, Aberystwith	University of Wales	T. E. Morgan	do.
Sewerage Works	Lowestoft T. C.	*Official*	do.
Paving, Flagging, Channelling, &c. Thirty-nine Streets	Burnley Corp.	do.	do.
Granite Road Metal	Rugby R.D.C.	do.	do.
Enlargement of House, Guiseley, Yorks	.....	Walker & Collinson	June 16
Additions to Schools, Nantyglo	Aberystruth Sch. Bd.	G. Rosser	June 17
*Well and Borehole, Leigh	Rochford R.D.C.	J. Mansergh	do.
*Painting Works, Town Hall	Shoreditch Vestry	T. R. Roscoe	do.
*Sewage Works, &c. &c.	Portishead U.D.C.	T. J. Moss Flower	do.
*General Repair of Buildings	Central London Sick Asylum District	W. S. Cross	do.
*Construction of Waterworks	Bilston U.D.C.	B. Latham	June 18
*Haggerston Drainage	Shoreditch Vestry	T. R. Roscoe	do.
*Road Materials	Lewisham Board of W.	*Official*	do.
Pipe Sewer, Silverhill	Hastings R.D.C.	do.	do.
*Construction of Sewer	Lewisham Bd. of W.	do.	do.
*Paving Works	Tottenham U.D.C.	P. E. Murphy	do.
*Making-up and Paving Roads	Fulham Vestry	C. Botterill	June 19
Wood Paving Works	Westminster Vestry	G. R. W. Wheeler	do.
Offices, &c. Gillingham Gas Works	Rochester, &c. Gas Co.	*Official*	June 20
Additions to Asylum, Omagh, Ireland	Lunacy Comms.	do.	do.
Buildings, &c. at the Sewage Disposal Works, Livesey Fields	Bury (Lancs) Corp.	J. Cartwright	June 22
*School Buildings	East Ham School Bd.	R. L. Curtis	June 24
*Road Works, Tunbridge Wells	Grosvenor Park Estate	B. Pomfret & Co.	do.
*Road Works	Limehouse Board of W.	*Official*	do.
Whinstone Road Metal, near Scarbro'	Sherburn R.D.C.	do.	do.
Road Materials	Steyning West (Sussex) R.D.C.	do.	do.
*Block of Dwellings, Shoreditch	London County Council	do.	June 25
Sewage Disposal Works, Earl's Barton	Wellingborough R.D.C.	Sharman & Archer	do.
*Petty Sessional Court, &c. Hatfield	Hertford County Coun.	U. A. Smith	do.
*Rebuilding Hepste Bridge and Repairing Tringarth Bridge	Brecon County Council	W. Williams	June 26
Rebuilding Bridge, Upper Bedwell, Denbigh	.....	R. L. Williams	July 1
Slaughter-houses, Stables, &c.	Nelson (Lancs) Co-op. Soc. Ltm.	S. Whitehead	No date
Municipal Offices	Blackpool Corp.	Woodhouse & Potts	do.
*New Laboratories	Liverpool University College	A. Waterhouse & Son	do.
*Painting Works, Gosport District	War Department	*Official*	do.
*Painting Works, Thames (Chatham) District	.....	do.	do.
*Painting Works, South Aldershot	.....	do.	do.
Ten Cottages	Wigan Victoria Legal Friendly Society	Heaton & Ralph	do.
Mission Room and Vestries, Kent-road, Heeley, Sheffield	.....	W. J. Taylor	do.
Five Houses, Shepsty-road, Horbury, Yorks	.....	Wm. Berry	do.
House, Ton Mawr-road, Blaenavon, Mon.	.....	E. Blewitt	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Temporary Drainage Inspector	Fulham Vestry	2*l.*	June 12
Surveyor	Ilkley U.D.C.	150*l.*	June 13
*Instructors in Building Construction	Sch. Bd. for London	.....	June 15
Clerk of Works	Skipton R.D.C.	2*l.* per week	No date

Those marked with an asterisk (*) are advertised in this Number. ***Competition,*** *p.* iv. ***Contracts,*** ***pp.*** iv., vi., viii., ix., *and* xx. ***Public Appointments,*** *p.* xviii.

bourne-st., Belgravia, u.t. 26 yrs., g.r. 5*l.* 13s. 4d., r. 40*l.*, 380*l.*; 91 and 93, Church-st., Chelsea, u.t. 20 yrs., g.r. nil., 860*l.*; 140 and 142, Estcourt-rd., Fulham, u.t. 35 yrs., g.r. 8*l.*, 270*l.*

MAY 24.—By *Wootton & Green:* 1 and 2, Gloucester-ter., Edmonton, u.t. 84 yrs., g.r. 4*l.*, r. 39*l.* 12s., 215*l.*; 1 to 6, Sebastopol-rd., u.t. 55 yrs., g.r. 10*l.*, r. 102*l.* 14s., 500*l.*; 60, Nightingale-rd., Clapton, u.t. 77 yrs., g.r. 6*l.*, r. 30*l.*, 320*l.*—By *Mullett, Booker & Co.:* 22, Tavistock-rd., Bayswater, u.t. 61½ yrs., g.r. 7*l.* 10s., 365*l.*—By *Robt. Reid:* The Hartley Seed Stores, Hartley Witney, Hants, shop and two cottages, f., 600*l.*; f.g.r. of 50*l.*, New-st., Covent Garden, reversion in 64 yrs., 1,400*l.*—By *Sim & Randal:* 90 and 91, Forest-lane, Forest-gate, f., r. 56*l.*, 820*l.*; f.g.r. of 16*l.*, Marlborough-rd., reversion in 85 yrs., 335*l.*—By *Montagu, Robinson & Watson:* f.g.r. of 10*l.*, Milton-rd., Stoke Newington, reversion in 56 yrs., 270*l.*; 55, Albermanbury, City of London, profit rental 115*l.*, u.t. 2 yrs., 200*l.*; 36 and 38, Moor-lane; and 2, 3, and 4, Ropemaker-st., u.t. 67 yrs., g.r. 375*l.*, r. 1,016*l.*, 5,000*l.*; 36 and 38, Penrose-st., Walworth, f., r. 125*l.*, 1,825*l.*—By *W. Sutherland:* 45 aad 47, Holly-rd., Chiswick, u.t. 85 yrs., g.r. 10*l.*, r. 71*l.* 12s., 380*l.*; 135, Marylebone-rd., Marylebone, f., e.r., 60*l.*, 1,100*l.*; 141, Marylebone, f., r. 90*l.*, 1,770*l.*; 1, 3, and 4, Croom's-hill, Greenwich, u.t. 40¾ yrs., g.r. 21*l.*, 275*l.*; 39, Cardiff-rd., Luton, Beds., f., r. 40*l.*, 650*l.*; 160 and 162, High Town-rd., f., r. 35*l.*, 415*l.*—By *Dolman & Pearce:* 8, Sudeley-st., Islington, u.t. 31 yrs., g.r. 5*l.*, r. 35*l.*, 265*l.*; 30 and 31, New Charles-st., City-rd., u.t. 47 yrs., g.r. 10*l.*, r. 64*l.*, 605*l.*; 22, Matilda-st., Barnsbury, u.t. 46 yrs., g.r. 2*l.*, r. 32*l.*, 320*l.*; i.g.r. of 35*l.*, Polygon Mews East, Paddington, u.t. 40¼ yrs., g.r. 2*l.*, 490*l.*; f.g.r. of 24*l.*, Hawley-rd., &c., Kentish Town, u.t. 43 yrs., g.r. nil, 380*l.*; i.g.r. of 16*l.*, River-st., Clerkenwell, u.t. 17 yrs., g.r. nil, 155*l.*; i.g.r. of 36*l.*, Halliford-st., &c., Islington, u.t. 44 yrs., g.r. 2s., 625*l.*; i.g.r. of 37*l.* 10s., Bryan-pl., &c., Barnsbury, u.t. 48 yrs., g.r. 2*l.* 2s., 595*l.*; i.g.r. of 48*l.*, Richmond-rd., u.t. 46 yrs., g.r. 6*l.*, 760*l.*; i.g.r. of 10*l.* 10s., Railway-grove, New Cross, u.t. 59 yrs., g.r. 3s., 185*l.*; 45, Lightfoot-rd., Hornsey, u.t. 85 yrs., g.r. 7*l.* 7s., 215*l.*—By *Messrs. Crawter:* Allotment of pasture land, Cobham, Surrey, f. 1a. 1r. 38p., 370*l.*; residence and four cottages, Portsmouth-rd., f., r. 55*l.*, 900*l.*

MAY 27.—By *G. A. Wilkinson & Son:* No. 415, Strand, area 1,170 ft., f., 7,000*l.*; f.g.r. of 4*l.*, Watergate-st., Deptford, reversion in 62 yrs., 80*l.*; i.g.r. of 45*l.*, Peckham Rye and Philip-rd., Peckham, u.t. 56 yrs. g.r. 18*l.* 13s. 4d., 480*l.*; i.g.r. of 5*l.*, Philip-rd., u.t. 56 yrs., g.r. 2*l.* 6s. 8d., 40*l.*—By *J. H. Bethell:* F.g.r. of 15*l.*, Gray-st., Silvertown, reversion in 87 yrs., 330*l.*; f.g.r. of 7*l.*, Campbell-st., reversion in 87 yrs., 140*l.*—By *Furlong & Son:* F.g.r. of 7*l.* 10s., Perseverance-ter., Plumstead, reversion in 52 yrs., 180*l.*; 66 and 68, Brick-lane, Spitalfields, u.t. 20 yrs., g.r. 60*l.*, r. 160*l.*, 450*l.*—By *Glover & Harrison:* "Pond Cottages," Main-rd., Bexley Heath, and plot of building land, f., 395*l.*—By *R. A. Notley:* 131, King Henry's-rd., Regent's Pk., u.t. 66 yrs., g.r. 14*l.*, e.r. 100*l.*, 920*l.*—By *Elliott, Son, & Boyton:* 23 to 43 (odd), Holmesdale-rd., Highgate; 25 to 31 (odd), Orchard-rd., f., r. 379*l.*; 20 to 26 (even), Holmesdale-rd., f., held during two lives aged 43 and 41, r. 86*l.*, 57, Holmesdale-rd., u.t. 83 yrs., g.r. 6*l.*; 10, High-st., c., e.r. 80*l.*; and cottages in Duke's Head-yd., c., 6,060*l.*—By *Sedgewick, Son, & Weall:* Residence "Two Beeches," Hemel Hempstead, and 53a. 1r. 1p., f., 1,350*l.*; 8 Cottages, High-st. green, f., 495*l.*; Lane Farm Cottages, and Enclosure of Pasture Lane, 5a. 3r. 28p., f., 500*l.*; Enclosure of Land, Wellington-rd, &c., Pinner (excluding Church Site) f., 500*l.*—By *Woods & Snelling:* Enclosures of Building Land Sidcup Hill, Sidcup, Kent, 14a. 2r. 36p., f., 3,655*l.*; Plot of Building Land, Place-gn., 3r. 15p., f., 925*l.*; Enclosure of Building Land, Foot's Cray, 15a. 1r. 18p., f., 2,025*l.*

MAY 28.—By *Beard & Son:* 19, 21, and 23, Faraday-rd., Kensington, u.t. 80 yrs., g.r. 22*l.* 10s., r. 127*l.*, 945*l.*; 68 and 70, Mayo-rd., Willesden, u.t. 97 yrs., g.r. 11*l.*, 365*l.*; 3 and 5, Baker-rd., Harlesden, u.t. 95 yrs., g.r. 12*l.*, r. 56*l.*, 440*l.*; 7 to 19 (odd), Esmond-rd., Kilburn, u.t. 93 yrs., g.r. 44*l.* 2s., r. 234*l.*, 1,820*l.*—By *Edwin Evans:* 39, Beauchamp-pl., Brompton, u.t. 28¾ yrs., g.r. 8*l.* 16s., e.r. 70*l.*, 550*l.*; 19, South-st., Camberwell, u.t. 59¼ yrs., g.r. 26*l.* 10s., r. 69*l.*, 325*l.*; 8 and 10, Aylesford-st., Pimlico, u.t. 42½ yrs., g.r. 16*l.*, r. 84*l.*, 790*l.*—By *Inman & Co.:* 172A, 174, and 176, Uxbridge-rd., Shepherd's Bush, u.t. 19 yrs., g.r. 42*l.*, 350*l.*; 23, Earl-st., Marylebone, u.t. 20 yrs., g.r. 8*l.*, r. 65*l.*, 410*l.* — By *J. & R. Kemp & Co.:* 34, Osnaburgh-st., Regent's Pk., area 11,000 ft., u.t. 19 yrs., g.r. 5*l.*, r. 135*l.*, 1,320*l.*—By *Sinclair & Son:* F.g.r. of 70*l.*, Burlington-rd., Fulham, reversion in 52½ yrs., 1,800*l.*; 16, Willow Walk, Hackney, f., 260*l.*—By *Chinnock, Galsworthy, & Chinnock:* 51 and 52, Broad-street, Soho, and 3 and 2, Kemp's-ct., f., r. 147*l.*, 3,750*l.*; 53, 54, and 54a and b, 1, Kemp's-ct.; 87, 88, and 89, Berwick-st., f., r. 312*l.*, 5,350*l.*—By *Debenham, Tewson, & Co.:* "Southborough House," Putney Hill, u.t. 69½ yrs., g.r. 20*l.*, r. 207*l.*, 2,000*l.*; 39 and 41, Lyndhurst-rd., Peckham, f., r. 94*l.*, 1,710*l.*; 30 and 32, Lyndhurst-rd., u.t. 32 yrs., g.r. 16*l.*, r. 95*l.*, 600*l.*: 1 and 3, Lyndhurst-rd., u.t. 51½ yrs., g.r. 12*l.*, r. 74*l.*, 570*l.*; 1, Alleyn-cres., Dulwich, u.t. 48 yrs., g.r. 6*l.* 2s., r. 50*l.*, 300*l.*; 3 and 4, Alleyn-cres., u.t. 48 yrs., g.r. 12*l.* 16s., r. 90*l.*, 585*l.*—By *Brodie, Timbs, & Co.:* 12 and 13, Houghton-st., Strand, f., r. 102*l.*, 1,820*l.*; 9, New Inn Passage, f., r. 20*l.*, 365*l.*—By *Field & Sons:* 18, 20, 22, and 24, Villa-st., Walworth, u.t. 56 yrs., g.r. 24*l.*, r. 167*l.* 12s., 1,455*l.*; 59 to 69 (odd), Villa-st., u.t. 56 yrs., g.r. 32*l.* 16s. 3d., r. 202*l.* 16s., 1,495*l.*; f.g.r. of 42*l.* 17s., Marlborough-rd., Old Kent-rd., reversion in 70 yrs., 1,035*l.*; 100 and 100a, Albany-rd., f., r. 120*l.*, 1,375*l.*—By *W. Houghton:* 18, Sidworth-st., Hackney, u.t. 76 yrs., g.r. 5*l.* 15s., 325*l.*; 11, 18, 19, and 20, Emma-st., u.t. 40 yrs., g.r. 11*l.*, 420*l.*; 74 to 84 (even), Knapp-rd., Bow, u.t. 67 yrs., g.r. 21*l.*, 1,175*l.*—By *Weston & Sons:* 399, Brixton-rd., Brixton, f., r. 125*l.*, 2,620*l.*; 50, Denmark-rd., Camberwell, f., r. 32*l.*, 430*l.*; 24 and 26, Harold-st., u.t. 73 yrs., g.r. 16*l.*, r. 84*l.*, 750*l.*; 17, Castlenau Gardens East, Barnes, u.t. 44 yrs., g.r. 2s. 6d., r. 90*l.*, 1,140*l.*

MAY 29.—By *Dowsett, Knight, & Co.:* 39, 41, 63, and 65, Burnt Ash-rd., Lee, u.t. 64½ yrs., g.r. 2*l.*, r. 180*l.*, 1,600*l.*; 31, Daleham Mews, Hampstead, u.t. 83 yrs., g.r. 4*l.*, r. 23*l.*, 215*l.*

MAY 30.—By *H. R. Farnan:* F.g.r. of 36*l.*, Coningsby-rd., Ealing, reversion in 62½ yrs., 900*l.*; 33, Glengall-rd., Old Kent-rd., u.t. 29½ yrs., g.r. 5*l.* 5s., e.r. 38*l.*, 215*l.*—By *J. Hibbard & Sons:* 16, 17, and 18, Corinne-rd., Holloway, u.t. 73 yrs., g.r. 18*l.*, r. 96*l.*, 730*l.*; 189, Whittington-rd., Bowes Pk., u.t. 83½ yrs, g.r. 6*l.*, r. 22*l.*, 190*l.*—By *Jones, Lang, & Co.:* 27, Westbourne Pk.-rd., Bayswater, u.t. 53¼ yrs., g.r. 9*l.*, 600*l.*—By *R. Tidey & Son:* 8, 14, and 16, Blomfield-st., Dalston, u.t. 43¼ yrs., g.r. 3*l.*, r. 78*l.* 12s., 750*l.*; 49, Sigdon-rd., u.t. 73¼ yrs., g.r. 6*l.*, r. 34*l.*, 300*l.*; 15, Westmoreland-pl., City-rd., u.t. 8 yrs., g.r. 5*l.* 5s., r. 40*l.* 12s., 82*l.* 10s.; 34, Aberdeen-rd., Highbury, u.t. 62½ yrs., g.r. 8*l.*, e.r. 45*l.*, 380*l.*; 40 and 42, Oakley-st., Lambeth, u.t. 13¾ yrs., g.r. 20*l.*, r. 76*l.*, 50*l.*; 58, 60, 62, 64, Benyon-rd., Kingsland, u.t. 36½ yrs., g.r. 18*l.*, r. 138*l.*, 1,145*l.*; 65, Downham-rd., u.t. 30 yrs., g.r. 2*l.*, r. 50*l.*, 35*l.*; 29, Balmes-rd., u.t. 33 yrs., g.r. 4*l.*, r. 34*l.* 10s., 310*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G.	ton	8/0/0 0/0/0
Teak, E.I.	load	10/0/0 16/0/0
Sequoia, U.S. ft. cu		1/10 2/2
Ash, Canada load		2/10/0 3/15/0
Birch, do.		2/10/0 3/15/0
Elm, do.		3/5/0 4/10/0
Fir, Dantsic, &c.		2/15/0 3/10/0
Oak, do.		2/15/0 4/15/0
Canada		5/15/0 7/5/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		3/0/0 5/5/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Wainscot, Riga, &c., log		3/0/0 5/5/0
Odessa, crown		3/0/0 5/5/0
Deals, Finland 2nd & 1st std 100		7/0/0 8/10/0
Do. 4th & 3rd		7/0/0 8/0/0
Do. Riga		7/0/0 8/0/0
St. Petersburg, 1st yellow		9/10/0 12/0/0
Do. 2nd yellow		7/10/0 9/0/0
Do. white		8/0/0 9/10/0
Swedish		7/0/0 15/10/0
White Sea		7/10/0 15/0/0
Canada, Pine 1st		22/0/0 24/0/0
Do. do. 2nd		16/10/0 17/10/0
Do. do. 3rd, &c.		8/5/0 10/10/0
Do. Spruce, 1st		8/10/0 10/0/0
Do. do. 3rd and 2nd		6/10/0 7/5/0
New Brunswick		6/0/0 7/0/0
Battens, all kinds		5/0/0 21/0/0
Flooring boards, sq., 1 in. prep. 1st		0/9/0 0/14/0
Do. 2nd		0/6/6 0/11/0
Other qualities—		0/4/6 0/7/0
Cedar, Cuba	ft.	/3 /4
Honduras, &c.		/3 /4½
Mahogany, Cuba		/3½ /6
St. Domingo, cargo av.		/3½ 1/0
Mexican do. do.		/3 /4
Tobasco do. do.		/3½ /6
Honduras do.		/3½ /5½
Box, Turkey ton		4/0/0 25/0/0
Rose, Rio		7/0/0 26/0/0
Bahia		6/0/0 25/0/0
Satin, St. Domingo		0/0/5 0/1/0

TIMBER (*continued*).		
Satin, Porto Rico	0/0/6	0/1/6
Walnut, Italian	0/0/3½	0/0/7

METALS.		
Iron—Pig, in Scotland	ton	2/3/6 0/0/0
Bar, Welsh, in London		5/12/6 5/15/0
Do. do. at works in Wales		5/2/6 5/5/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British cake and ingot		46/10/0 46/15/0
Best selected		47/0/0 47/10/0
Sheets, strong		53/0/0 0/0/0
Chili bars		43/13/9 43/18/9
YELLOW M'TAL	lb	0/0/4½ 0/0/4½
LEAD—Pig, Spanish	ton	10/7/6 10/10/0
English com. brands		10/8/9 10/11/3
Sheet, English, 6 lbs. per sq. ft. and upwards		11/15/0 0/0/0
Pipe		12/5/0 0/0/0
ZINC—English sheet	ton	18/10/0 0/0/0
Vieille Montagne		19/0/0 0/0/0
TIN—Straits		63/17/6 64/7/6
Australian		64/12/6 65/2/6
English Ingots		68/10/0 69/0/0
Banca		66/0/0 66/5/0
Billiton		65/10/0 66/0/0

OILS.		
Linseed	ton	20/15/0 21/0/0
Cocoanut, Cochin		24/10/0 24/15/0
Do. Ceylon		22/15/0 0/0/0
Palm, Lagos		23/0/0 0/0/0
Rapeseed, English pale		23/0/0 0/0/0
Do. brown		21/10/0 0/0/0
Cottonseed ref.		18/0/0 18/5/0
Oleine		20/10/0 21/10/0
Lubricating, U.S.		5/9/0 8/6/0
Do. black		4/6/0 6/6/0
TAR—Stockholm barrel		1/1/0 1/1/6
Archangel		0/15/6 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERDEEN (N.B.).—For widening the bridge over river Bogie, at Huntly. Mr. J. Barron, C.E., 166, Union-street, Aberdeen:—

Thomas Gibson	£1,427	Cleveland Bridge and Engineering Co.	£778 4 5
J. B. Hollom & Co.	1,245	A. Findlay & Co.	731 0 0
Edgar Gauld	897 13 6	Somervail & Co., Dalmuir, near Glasgow*	712 6 11
David Porter	864 9 9		
W. McKinnon & Co.	841 7 10		
J. Abernethy & Co.	826 7 10		

* Accepted.

BANGOR (Wales).—For the erection of Congregational Chapel, Glasinfryn. Mr. Richard Davies, architect, Bangor:—
R. & I. Williams, Upper Bangor £760

BEIGHTON.—For the extension of school buildings, Beighton, near Sheffield, for the School Board of Beighton. Messrs. Hemsoll & Paterson, architects, Imperial Chambers, Sheffield. Quantities by the architects:—

Finder Bros. & Bowl	£4,089 0	J. Fidler	£3,398 0
Ash, Son, & Biggin	3,880 0	T. Staveley	3,260 0
G. Wright	3,683 0	T. Roper	3,099 0
J. W. Sykes	3,640 10	Bolsover Bros., Ridgeway*	3,053 14
B. Thorpe	3,498 10		
J. Walker & Sons	3,300 0		

* Accepted.

BESSINGBY (Yorks.).—For the erection of farm buildings, for Mr. A. Wright. Mr. J. Earnshaw, architect, Wellington-road, Bridlington Quay:—

J. T. Foster	£246 5	J. Rennard	£175 0
J. Sawdon	180 0	T. Gray (accepted)	158 0

[All of Bridlington Quay.]

BRIDLINGTON (Yorks.).—For alterations, &c., to No. 36, High-street (Contract No. 1); and for erection of business premises, North Back-lane (Contract No. 2), for Mr. J. Sawdon. Mr. J. Earnshaw, architect, Carlton House, Bridlington Quay:—

Contract No. 1.

J. Rennard	£257 10	F. Postill*	£225 0

Contract No. 2.

J. Rennard	£455 10	J. Sawdon	£380 0
J. T. Foster	452 5	F. Postill*	345 0

[All of Bridlington Quay.]

* Accepted.

BRIGHOUSE (Yorks.).—For the construction of 600 yards of earthenware pipe-sewer, Clifton, for the Halifax Rural District Council. Mr. J. W. Dyson, Surveyor, Clifton, Brighouse:—

Jas. Brook	£248 10 6	J. Balmforth	£215 0 0
Jas. Taylor	242 10 6	J. Bateman	207 6 8
R. Naylor & Sons	236 17 3	J. E. Kaye	206 13 0
Benjamin Brook	222 14 6	Jas. Wells, near Hipperholme*	196 8 9
H. Barraclough	219 15 7		
Jowett	219 5 4		

* Accepted.

BRIDGEND (Glam.).—For the erection of church, Bryncethin, for the Rev. Henry Lewis. Mr. E. J. Williams, architect, 14, High-street, Cardiff. Quantities by architect:—

Rattray & Jenkins	£1,800 0 0	John Haines	£1,371 0 0
A. G. Ford & Co.	1,660 0 0	D. C. Jones & Co.	1,357 0 0
G. James & Son	1,550 0 0	C. H. Cooksley	1,315 0 0
H. Willcock & Co.	1,549 0 0	A. J. Howell & Co., Cardiff*	1,291 5 8
Hatherly & Carr	1,457 0 0		

* Accepted.

BROMSGROVE.—For the erection of new shoe factory and premises, Bromsgrove, for Messrs. Fussell & Drury. Messrs. Mosley & Anderson, architects and surveyors, Goodyear Chambers, Northampton:—

	Factory.	Glazed Bricks.	Wood Block Floors.
	£	£	£
Morris & Atkinson	6,200	134	337
J. Leadbetter	5,580	59	56
W. Payne	5,224	141	67
J. R. Green	5,095	225	—
W. Bishop	4,999	113	202
Tilt & Weaver	4,936	75	269
D. Edwards	4,850	150	250
E. J. Charles	4,800	105	750
L. Giles	4,800	102	800
C. A. Horton	4,700	85	242
H. Smith	4,683	123	337
Guest & Sons	4,620	147	213
Lowe & Son	4,620	105	250
Dorse & Son	4,600	98	303
J. Brazier	4,590	100	275
R. M. Hughes	4,421	160	200
Jones & Son, Sedgley*	4,300	129	300
Architect's estimate	4,400	150	295

* Accepted.

CAMBRIDGE.—For erecting a residence in Gresham-road, Cambridge, for Mr. C. Williams. Mr. Sidney French, architect, Llandaff Chambers, Regent-street, Cambridge:—

Bell & Son	£1,487	Kerridge & Shaw	£1,440
Kidman	1,453	Saint (accepted)	1,336

[All of Cambridge.]

CATFORD.—For erecting Wesleyan chapel, Rushey Green, Catford. Mr. Chas. Bell, architect. Quantities by Messrs. Stanger & Son:—

Watt	£4,825	Smith & Son	£4,233
Allen & Sons	4,701	Holliday & Greenwood	4,120
Nightingale	4,578	Staines & Son	4,094
Holloway Bros.	4,479	Jerrard & Son	4,083
G. Parker	4,360	Howell J. Williams	4,045
Laird	4,318	Goad	3,995
Edwards & Medway	4,306	J. Anley	3,930
Outhwaite & Son	4,245	Graty (accepted)	3,912

CHEAM.—For alterations and additions to residence, Cheam, Surrey, for Mr. E. Boniface. Messrs. Inskipp & Mackenzie, architects, No. 5, Bedford-row, London, W.C.:—

Easterbrook & Son	£2,880	Ockenden	£2,275
Oldrey & Son	2,535	Potter	2,174
Hunt	2,387	Balchin & Shopland*	2,147
Humphreys	2,198	Harris	1,990

* Accepted.

CHERTSEY.—Accepted for kerbing, channelling, &c., Guildford-street, for the Urban District Council. Mr. A. W. Smith, Surveyor, Eastworth-road, Chertsey:—
Victoria Stone Co., Kingsland-road, London, at schedule prices.

CHESTERFIELD.—Accepted for the erection of a Wesleyan chapel, at Heath, near Chesterfield. Mr. W. Bramham, architect, Clay Cross:—
Charles Moult, Stapleford, Notts £450

CROYDON.—For new billiard-room and other additions to the "Royal Oak" Inn, Surrey-street, for Messrs. Page & Overton, Ltd. Mr. Alfred Broad, architect, 3, High-street, Croydon. Quantities by the architect:—

S. Page	£1,473	W. H. Lascelles & Co.	£1,383
Hanscomb & Smith	1,460	W. Smith & Son	1,359
E. J. Saunders	1,437	W. H. Lorden & Son	1,347
E. P. Bulled & Co.	1,419	D. W. Barker	1,340
J. Smith & Sons	1,416	A. Bullock*	1,189

* Accepted.

DINAS POWIS (Wales).—Accepted for repairs of highways, for the Highway Board. Mr. Frank Laurens, C.E., District Surveyor, Dinas Powis:—
Edmund Lewis, Dinas Powis, 3s. 5d. per cubic yard.

DORKING.—For making-up Meadow Brook-road, for the Urban District Council. Mr. G. Somers Mathews, C.E., 35, High-street, Dorking:—

G. A. Franks	£269 17	Thos. Free & Sons	£199 10
W. H. Wheeler	246 0	E. Steer, East Grinstead*	199 0
W. M. Woodland	244 0		

* Accepted.

DUNGANNON (Ireland).—For the construction of a sewer (12-in. pipe and 9-in.), for the Sanitary Authority. Mr. J. L. Devenish Meares, C.E., Town Hall, Newry:—

Thos. Rainey	£564 9	Jas. McKee, Dungannon (accepted)	£295 16
J. McNalley	469 0		

[Engineer's estimate, £458 18s. 6d.]

DURHAM.—For additions to school buildings, Bear Park, for Elvet St. Oswald (ex. mun.) School Board. Mr. H. T. Gradon, architect, Market-place, Durham:—
Hannah Talbot £182 15 6
John Whaley, Gilesgate, Durham (accepted) 168 0 0

HARROW.—For the erection of four pairs of villa residences. Messrs. Marshall & Vickers, architects. Quantities by Messrs. E. J. Pain & Son:—

H. Lee	£8,596	W. Bell & Son	£7,724
T. Adamson	8,474	F. T. Chinchen, Kensal Green*	7,688
T. Turner, Ltd.	7,880		

* Accepted.

LONDON.—For the substructure of the Borough Theatre, Stratford, E. Mr. Frank Matcham, architect. Quantities by Mr. Frederick Thomson:—

Atherton & Latta	£2,518 0	T. White & Son	£2,080 0
Maddison	2,389 0	Perry & Co.	2,066 0
Watson	2,350 0	Walsh & Co.	2,015 10
Toms	2,266 0	Harris & Wardrop	1,973 0
A. Reed & Sons	2,225 0	Gregar & Sons	1,907 0
Lamble	2,187 0	Carter, Argent-street, Grays*	1,919 4
Holloway Bros.	2,148 0	Gladding†	1,748 0
John Jackson	2,120 0		
Chamberlain Bros.	2,097 0		

* Accepted. † Withdrawn.

LONDON.—For the erection of steam laundry and cottage at the infirmary, &c., Bancroft-road East, for the Guardians of Mile End Old Town. Mr. Chas. F. Burden, architect, Workhouse, Bancroft-road, E.:—

G. Barker & Co.	£7,642	F. J. Wood	£7,139
H. H. Shewin	7,428	Kirk & Randall	7,062
Gladding	7,342	Perry & Co.	6,827
C. Peek	7,339	Cooper, Upton-park, Essex*	6,574
White & Son	7,249		
Carter	7,193		

* Accepted.

LONDON.—For alterations to "The White Conduit Tavern," Barnsbury-road, Islington, N., for Mr. C. Laceby. Mr. Richard Dickinson, architect:—

Turtle & Appleton	£1,170	Deering & Son	£1,027
Street	1,158	Beer & Gash	981
Johnston	1,058	Edwards & Medway	886

GREAT BENTLEY.—For the erection of schools and board-room, boundary walls, playgrounds, earth closets, &c., and master's residence, for the Great Bentley School Board, Essex. Mr. J. W. Start, Architect, Colchester, Clacton-on-Sea, and Harwich. Quantities by the architect:—

	Schools.	Covered Playgrounds, Earth Closets, &c.	Boundary Walls, &c.	Drainage and Water Supply.	Playgrounds, &c.	House.	Total.	Alternative Estimates.—Extra for Stone Dressings.	Park Fencing.	Slating.	Brick-wall
	£ s.	£ s.	£ s. d.	£ s. d.	£ s. d.	£ s.	£	£ s.	£ s.	£ s. d.	£ s. d.
H. Gladwell	2273 0	245 5	223 5 6	68 5 0	102 10 0	343 5	3346	79 5	207 10	29 5 6	103 2 6
T. Canham	2251 0	278 0	203 5 0	73 15 0	100 10 0	339 5	3336	98 10	101 10	32 5 0	92 15 0
W. Chambers	2159 0	271 0	223 0 0	85 0 0	199 0 0	359 0	3399	123 0	145 0	30 0 0	95 0 0
E. C. Orfeur	2180 0	270 0	220 0 0	76 0 0	189 0 0	370 0	3305	116 0	120 0	35 0 0	85 0 0
R. Beaumont	2015 0	270 0	193 0 0	78 0 0	180 0 0	348 0	3084	76 0	229 0	34 10 0	88 0 0
H. J. Linzell	2000 0	259 0	180 0 0	69 0 0	164 0 0	316 0	2988	77 0	111 0	30 0 0	17 0 0
F. Dupont	1950 0	256 0	180 0 0	67 0 0	160 0 0	330 0	2943	16 0	116 0	25 0 0	80 0 0
Girling & Coe	1895 0	272 0	204 0 0	73 0 0	167 0 0	312 0	2923	85 0	123 0	20 0 0	93 0 0
E. B. Badcock & C. Maxey	1943 12	263 2	156 17 0	62 7 4	86 15 8	339 11	2852	71 11	99 10	28 13 0	67 13 0
E. West*	1834 0	269 0	172 0 0	68 0 0	138 0 0	269 0	2750	63 0	116 0	31 0 0	65 0 0

Accepted provisionally.

LONDON.—For internal painting at the Poland-street workhouse, for the Guardians of the Westminster Union. Messrs. J. Waldram & Son, surveyors, 17, Buckingham-street, Charing Cross, W.C. Quantities supplied:—

Johnson & Manners	£241 0	J. B. Colwill (accepted)	£230 10
T. Nicholson	235 0		

[Surveyors' estimate, £232.]

LONDON.—Accepted for repairs and decorations to restaurants in the City, for Messrs. Smith & Co.:—
Henry Line, 185, Upper Thames-street, E.C. £271

LONDON.—Accepted for repairs and decorations to restaurants in the City, for Mr. W. Kirkland. Mr. W. Graves, architect:—
Henry Line, 185, Upper Thames-street, E.C. £217

LONDON.—Accepted for reinstating, after fire, at 21, Northcross-road, Dulwich:—
Henry Line, 185, Upper Thames-street, E.C. £322

LONDON.—Accepted for alterations to staircases, &c., of main building, and for addition of laundry building, &c., at East-lane Bermondsey School, for the School Board for London. Mr. T. J. Bailey, Architect:—
Henry Line, 185, Upper Thames-street, E.C. £900

LONDON.—Accepted for repairs and decorations at Billiter Buildings, E.C., as per revised and amended specification. Mr. F. H. Houldsworth, architect:—
Henry Line, 185, Upper Thames-street, E.C. £622

LONDON.—Accepted for exterior repairs and painting at Midway-place and Southwark Park-road schools, for the London School Board. Mr. T. J. Bailey, Architect:—
Henry Line, 185, Upper Thames-street, E.C. £168

MAIDENHEAD THICKET (Berks.).—For the erection of new house. Mr. Arthur Vernon, architect, 29, Cockspur-street, London, S.W., and High Wycombe:—

Hollis	£1,995	Webster	£1,750
Barker	1,875	Silver	1,824
Gibson	1,750	Loosley (accepted)	1,517

NEWCASTLE-ON-TYNE.—For the erection of a block of semi-detached cottages, at Benton Grange, for the Jesmond and Gosforth Laundry Co., Ltd. Messrs. Badenock & Bruce, architects, 21, Pilgrim-street. For one block:—

Edward Weatherley	£967 10 0	N. W. Maughan	£920 10 5
Thomas Curry	967 10 0	G. & C. Wells	865 16 0
John Slater & Son	955 10 0	Robert Simmons	790 10 0
E. & F. George	925 0 0	John Jackson*	763 11 2

* Accepted.

NEWPORT (Mon.).—For pulling down and rebuilding the "Foaming Tankard" and two adjoining shops and houses, Cross- and Fothergill-streets, Newport, Mon., for Messrs. W. Hancock & Co. Mr. W. L. Griffiths, architect, Newport, Mon.:—

J. Mordecai	£3,115	Hatherley & Carr	£2,660
Stephens, Bastow, & Co., Ltd.	2,965	A. E. Parfitt	2,530
T. Evans	2,820	J. Jenkins	2,500
Jones & Co.	2,697	J. Linton	2,395
		W. A. Linton, Newport*	2,389

* Accepted.

NEW SOUTHGATE.—For erecting new studio for the Stereoscopic Co., Ltd. Mr. W. H. Harrison, architect:—

F. T. Chinchen	£570	Sellwood	£455

PINNER.—For bath-room additions, Onslow Villa, Woodridings, for Dr. J. Compton Burnett, M.D. Mr. Alfred Broad, architect, 3, High-street, Croydon. Quantities by the architect:—

W. H. Lorden & Son	£252 0	W. H. Lascelles & Co.	£215 10
Hanscomb & Smith	232 0	G. & J. Waterman, Watford (accepted)	212 0
E. P. Bulled & Co.	228 0		

PONTYPOOL.—For the erection of school buildings (West Monmouth), for the Haberdashers Company. Mr. Henry Stock, architect, Denman-street, London Bridge, S.E.:—

Morgan & Evans	£29,377 17	Claridge & Bloxham	£25,973 0
James Allen	29,230 0	G. H. Wilkins	25,740 0
Shillitoe & Son	28,400 0	J. Jenkins	25,600 0
Charles Lock	27,650 0	H. Willcock & Co.	24,675 0
Hatherley & Carr	27,298 0	W. Robinson	24,614 0
W. Cowlin & Son	27,197 0	W. Gradwell & Co.	24,224 0
W. Lissaman, junr.	26,350 0	John Linton	23,765 0
John Perkins	26,319 0	Saml. Warbuton	23,685 0
Henry Smith	26,215 0	W. Bowers & Co.	23,347 0
W. Jones & Son	26,067 0		

RICHMOND.—For erecting the Secondary Schools and Technical Institute, for the Surrey County Council. Messrs. Fryer & Bath, architects, Queen Anne's Mansions, Westminster, S.W., and Richmond. Quantities by Messrs. J. & A. E. Bull, Craven-street, W.C.:—

F. Britton	£7,315	Johnson & Co.	£6,870
J. T. Messom	7,275	J. W. Brooking, Richmond*	6,862
Speechley & Smith	6,988		
G. Godson & Sons	6,931		

* Accepted with modifications.

SWINDON.—For the erection of the Clarence-street School, Swindon, for the Swindon School Board. Mr. William Drew, architect, 22, Victoria-street, Swindon. Quantities by the architect:—

Benfield & Loxley	£10,820 0 0	G. H. Wilkins	£9,774 0 0
D. C. Jones & Co.	10,747 0 0	T. Barrett	9,699 0 0
J. Long & Sons	10,743 0 0	W. Jones	9,487 0 0
J. Leighfield	10,537 0 0	C. H. Hunt	9,333 0 0
H. A. Forse	9,598 0 0	C. Williams, Swindon*	9,276 14 0
H. Flewelling	9,805 0 0		

* Accepted subject to the approval of the Education Department.

SANDAL (Yorks.).—For the construction of sixteen houses, Agbrigg, for Mr. W. Jessop. Mr. H. Ashwell, C.E., Regent-street, Belle Vue. Quantities by engineer:—

Building, Plastering, and Slating.

Wilson & Son	£4,013 2 3	J. R. Hanes	£2,742 1 9½
R. Leake & Sons	3,150 0 0	J. R. Hanes†	1,479 10 0
Latham & Ball	2,962 13 6	Latham & Ball† *	1,445 0 0

† Retendered for nine houses. * Accepted.

Carpentry and Joinery.

R. Leake & Sons	£1,650 0 0	A. Elstub	£1,283 6 0
W. J. Atkinson	1,479 0 0	J. E. Greenwood	1,215 0 0
W. Smith	1,454 11 0	F. H. Curry	1,176 9 4
W. E. Brook	1,449 16 0	J. Ashton	1,135 3 6
J. Kearsley	1,387 14 0	G. Ashton	1,121 0 0
J. & J. Mountain	1,379 0 0	N. Ibbottson, Belle Vue*	1,118 4 6
Bramald & Broadhead	1,290 0 0		

* Accepted for nine houses at schedule, £652 9s. 9d.

Plumbing, Painting, and Glazing.

R. Leake & Sons	£450 0 0	J. Snowden & Sons	£287 10 0
A. Lucas	342 10 0	D. Greaves	283 16 8
G. E. Stead	330 4 7	S. Atkinson, Wakefield*	280 18 0
J. Richardson	317 19 6		

* Accepted for nine houses at schedule, £173.

STOCKPORT.—For the execution of private street works (Carmichael-street, &c.), for the Corporation. Mr. John Atkinson, C.E., St. Petersgate, Stockport:—

Worthington & Pownall	£3,017 15 1	P. D. T. D. Hayes*	£2,821 12 11
W. Briscoe & Sons	2,919 9 10		

* Accepted.

[All of Stockport.]

SWITHLAND (Leicestershire).—For the construction of sewerage works, for the Barrow-upon-Soar Rural District Council. Mr. J. B. Everard, C.E., 6, Millstone-lane, Leicester:—

J. Holme	£2,047 5 0	Jas. Mason, Leicester*	£2,604 10 10
S. Hipwell	2 890 0 0		
Moss & Son	2,862 0 0		

* Accepted.

TOTNES (Devon).—For the construction of reservoir, &c., near Bowden, for the Town Council. Mr. N. F. Tollit, Borough Surveyor, Gate-house, Totnes:—

W. Reeves	£794 14	Bridgman	£641 0
H. P. Rabbich	740 0	T. Brook, Totnes*	639 0

* Accepted.

TRURO.—For the erection of free library, Pydar-street, for the Urban Sanitary Authority. Mr. Sylvanus Trevail, architect, Truro:—

John Higgins	£2,256	Clemens & Battershill, Truro*	£1,782
Arthur Carkeek	1,913		
John Collivers	1,819		

* Accepted.

WINSLOW (Bucks.).—For the supply of 1,250 tons of granite, for the Rural District Council. Mr. Wm. Wise, surveyor, Winslow:—

Ireland & Knight, Mancetter Granite Quarries, Atherstone, Leicestershire.*

* Accepted at an all-round price of 9s. 2d. per ton, delivered.

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Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the front Page should be in by TWELVE noon on WEDNESDAY.

SPECIAL.—ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before 10 a.m. on WEDNESDAY MORNING.

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We are compelled to decline pointing out books and giving addresses.

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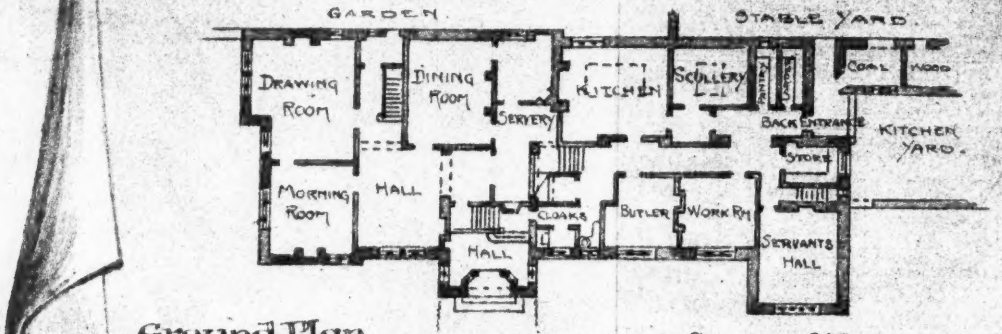

Ground Plan.

10 5 0 10 20 30 40 50 60 70 80

SCALE OF FEET.

CHARLES J. FERGUSON, F.S.A.,
ARCHITECT.
WESTMINSTER & CARLISLE.

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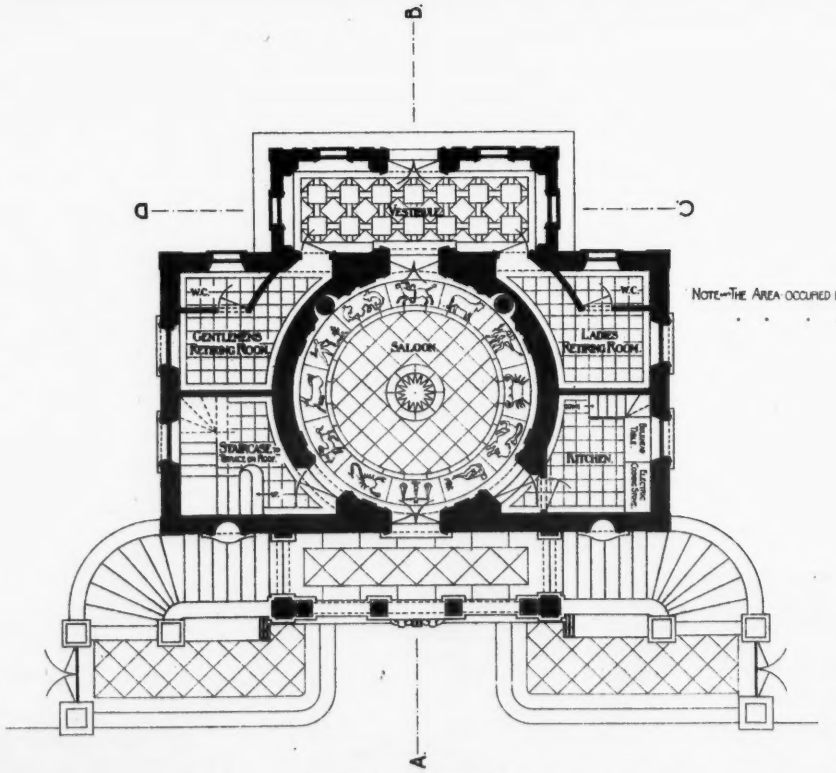
TITE PRIZE COMPETITION

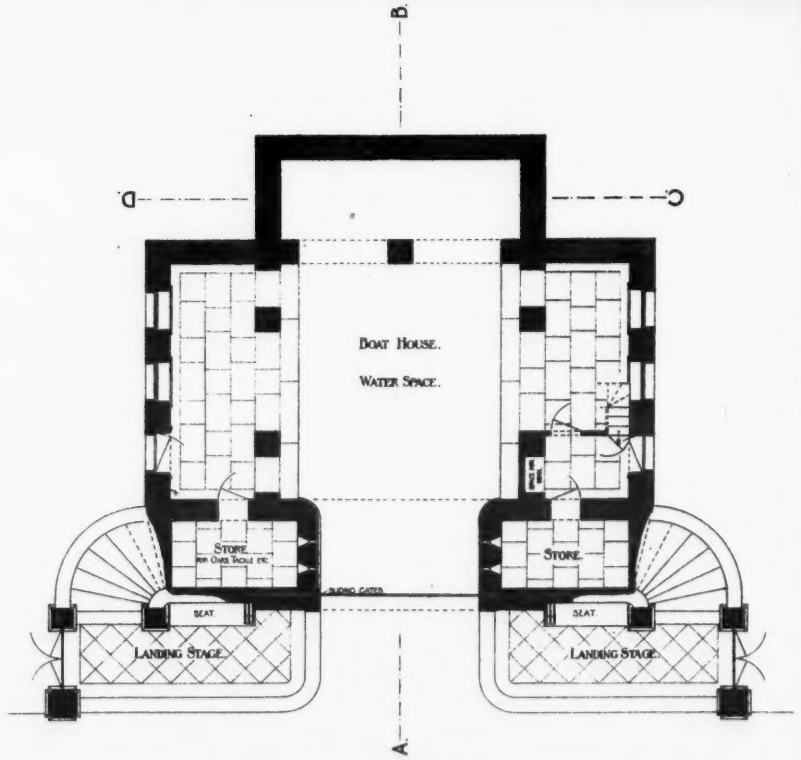
DESIGN FOR A GARDEN PAVILION OVERLOOKING A LAKE. 1894



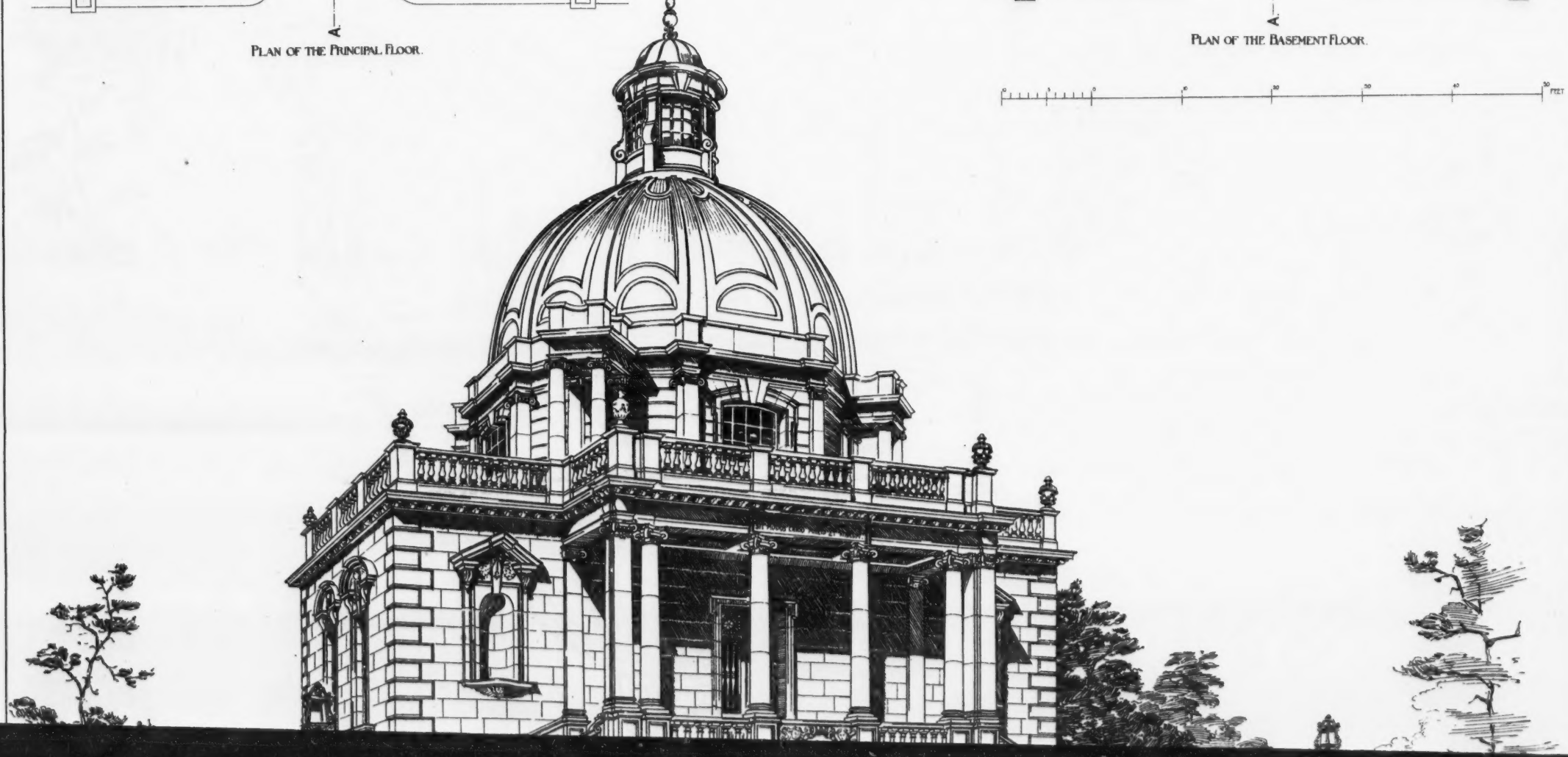
Plan of the Principal Floor.

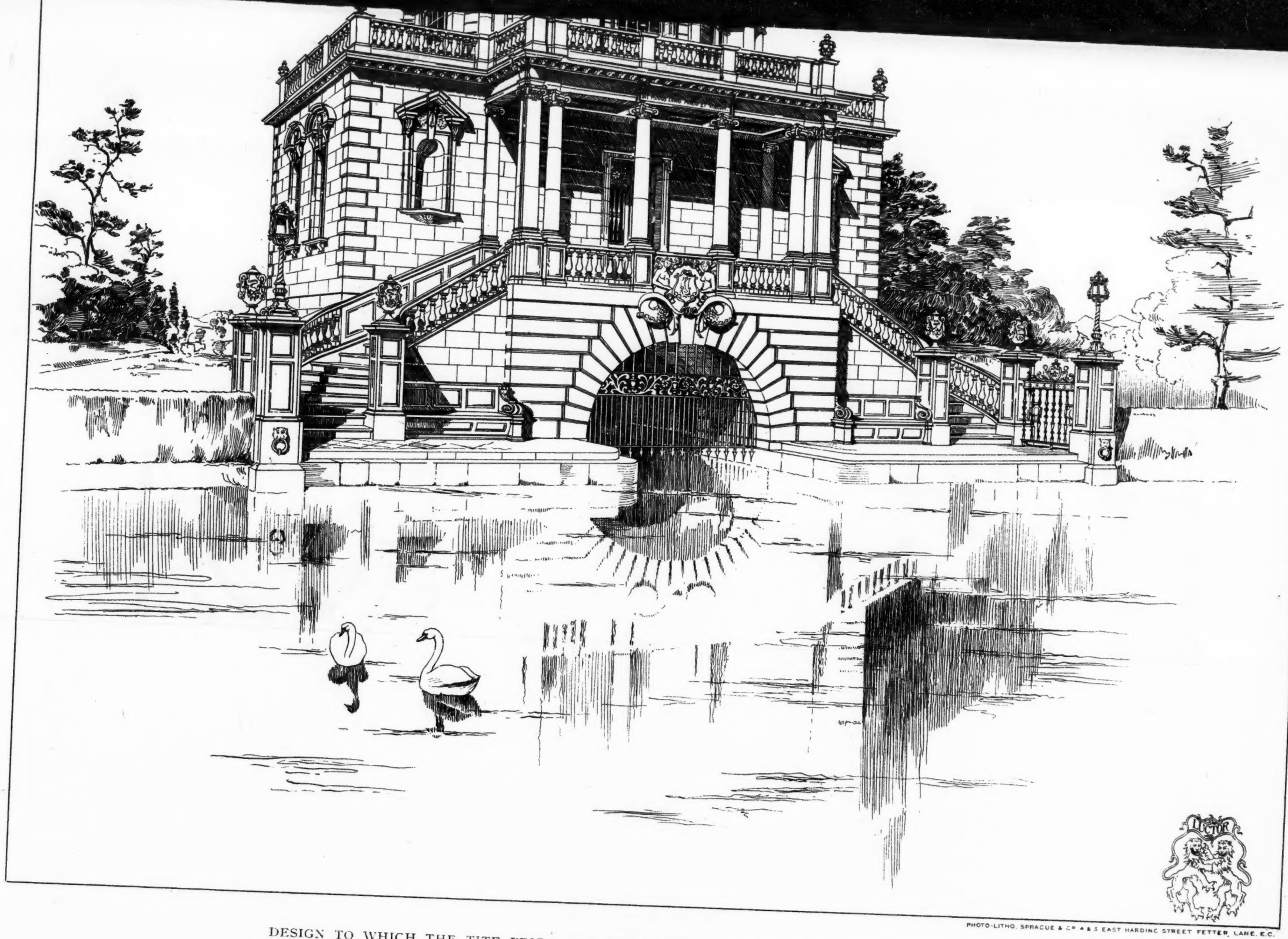
Note—The Area occupied by the Building Proper = 1340 sup ft
. . . . . Steps & Landing Stage = 660 . .
Total 2000 sup ft.

Note—It is intended that the whole of the flat Roof round the Dome should be used as a Promenade.



Plan of the Basement Floor.





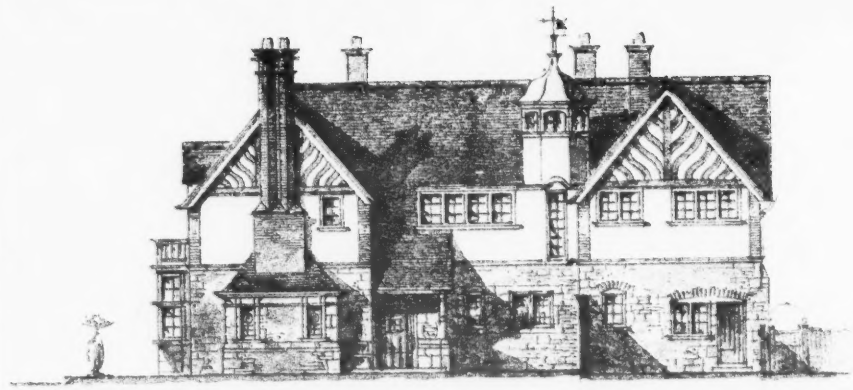
DESIGN TO WHICH THE TITE PRIZE 1894, WAS AWARDED.—By Mr. R Shekleton Balfour, A.R.I.B.A

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE, E.C.

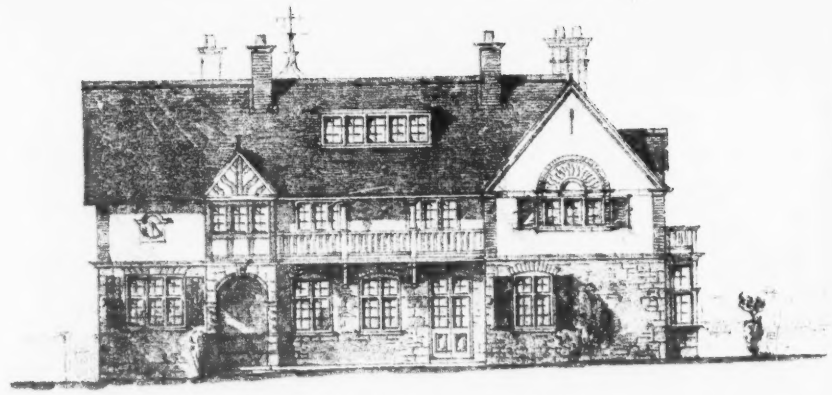
NORTHAMPTON INSTITUTE, CLERKENWELL · VIEW OF FRONTS IN LOWER CHARLES STREET AND ST JOHN

INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

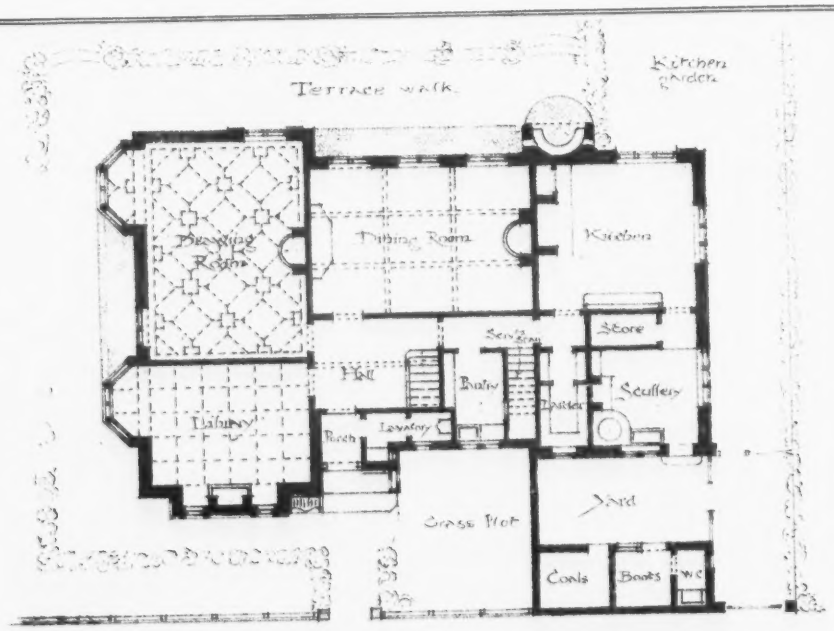
HARLES-STREET AND ST JOHN'S STREET ROAD.—Mr. E. W. Mountford, F.R.I.B.A., Architect



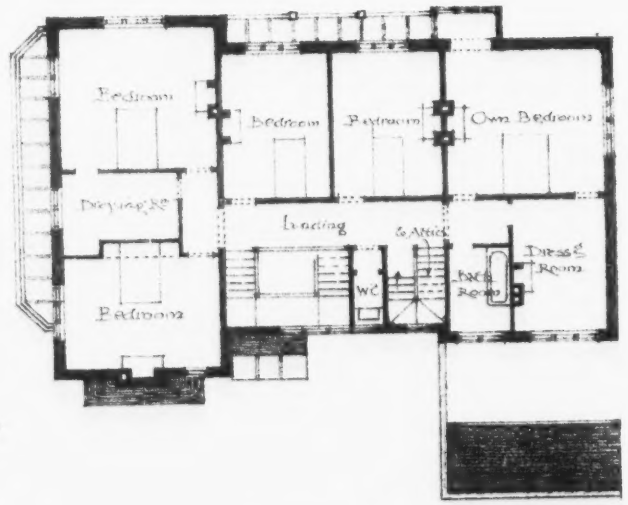
Elevation towards the Road



Elevation towards the Garden



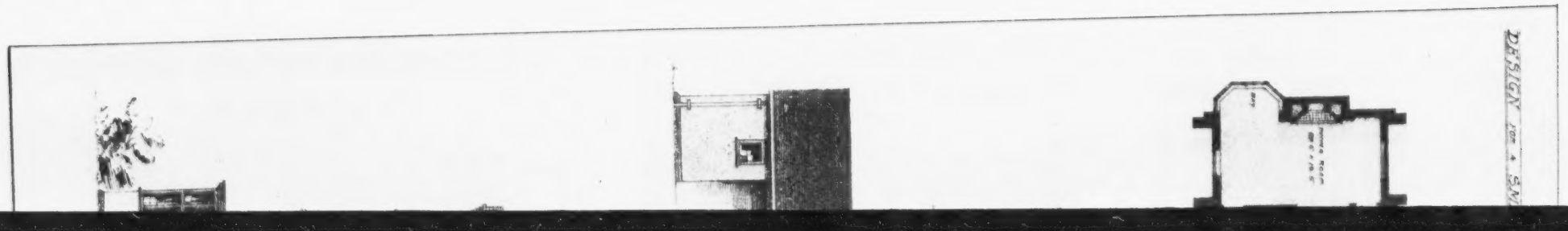
Ground Plan



Chamber Plan

Harry Redfern Archt.

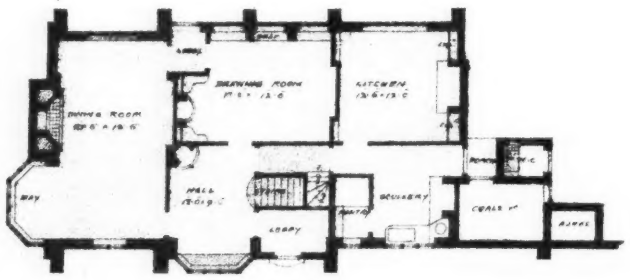
INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.



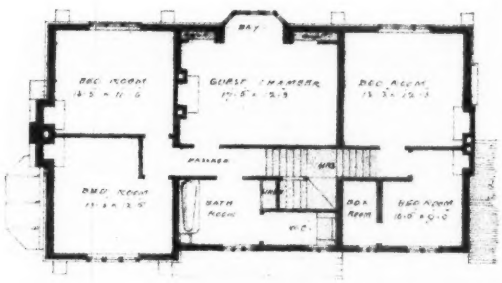
DESIGN FOR A SMALL

DESIGN FOR A SMALL & INEXPENSIVE COUNTRY HOUSE.

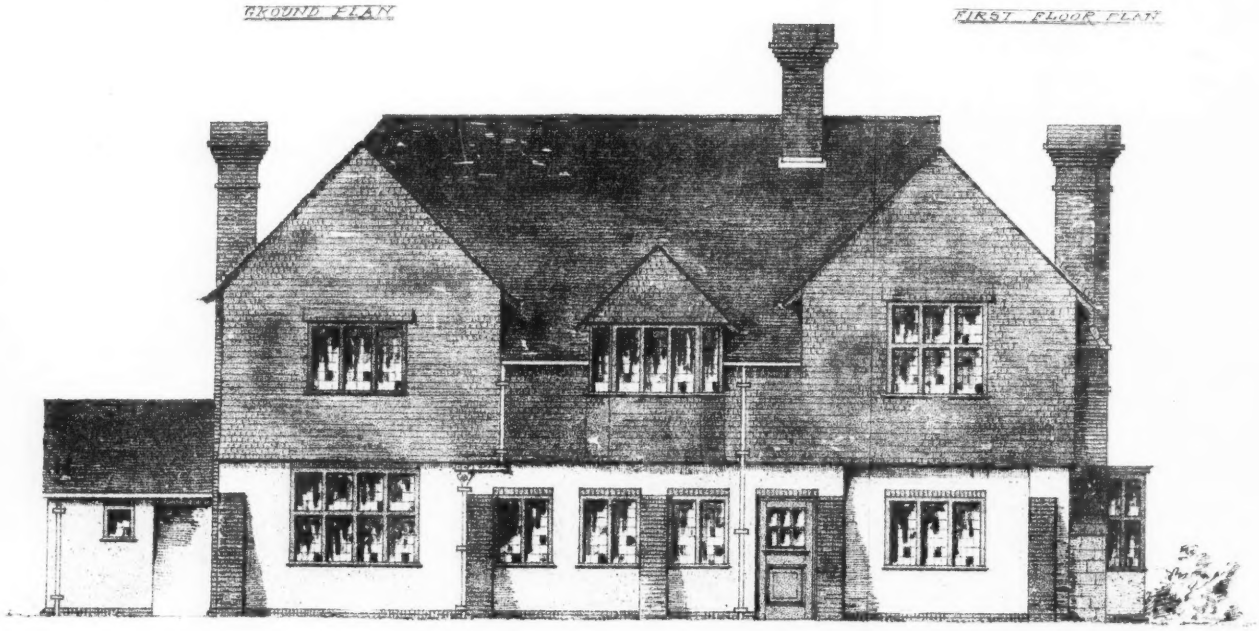
Scale of 0 5 10 20 feet



GROUND PLAN



FIRST FLOOR PLAN



GARDEN ELEVATION

FRONT ELEVATION

Scale of 0 5 10 20 30 feet

Arthur A. Graham Archt.
Harrogate.

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